Dissertation on

"CIRCADIAN FLUCTUATION OF MEAN OCULAR PERFUSION PRESSURE AND ITS RELATIONSHIP WITH VARIOUS TYPES OF GLAUCOMA"

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CERTIFICATE

This is to certify that this dissertation entitled "**CIRCADIAN FLUCTUATION OF MEAN OCULAR PERFUSION PRESSURE AND ITS RELATIONSHIP WITH VARIOUS TYPES OF GLAUCOMA**" is a bonafide record of the research work done by **Dr. K. GAYATHRI.,** post graduate in Regional Institute of Ophthalmology and Government Ophthalmic Hospital, Madras Medical College and Government General Hospital, Chennai-03, in partial fulfillment of the regulations laid downby The Tamil Nadu Dr. M.G.R. Medical University for the award of M.S. Ophthalmology Branch III, under my guidance and supervision during the academic years 2016-2019.

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled, **"CIRCADIAN FLUCTUATION OF MEAN OCULAR PERFUSION PRESSURE AND ITS RELATIONSHIP WITH VARIOUS TYPES OF GLAUCOMA"** is a bonafide and genuine research work conducted by me under the guidance of **Prof. Dr.M.R.CHITRA, M.S.,** Head of Department of Glaucoma services, Regional institute of ophthalmology & Government Ophthalmic hospital. Chennai-600008.

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CONTENTS

ABBREVIATIONS

IOP – INTRA OCULAR PRESSURE

GAT – GOLDMANN APPLANATION TONOMETRY

MAP – MEAN ARTERIAL PRESSURE

MOPP – MEAN OCULAR PERFUSION PRESSURE

POAG – PRIMARY OPEN ANGLE GLAUCOMA

NTG – NORMOTENSIVE GLAUCOMA

OHT – OCULAR HYPERTENSION

MD – MEAN DEFECT

LV -LOSS VARIANCE

BP – BLOOD PRESSURE

SOPP – SYSTOLIC OCULAR PERFUSION PRESSURE

DOPP – DIASTOLIC OCULAR PERFUSION PRESSURE

ONH – OPTIC NERVE HEAD

RNFL – RETINAL NERVE FIBRE LAYER

CCT – CENTRAL CORNEAL THICKNESS

MS- MEAN SENSITIVITY

SF – SHORT TERM FLUCTUATIONS

RF – RELIABILITY FACTOR

INTRODUCTION

Glaucoma is a chronic progressive optic neuropathy which cause damage to the optic nerve by a group of eye disorders with corresponding visual field defects in which raised intraocular pressure is the only modifiable risk factor.

Optic nerve head is the condensation of nonmyelinated axons of the ganglion cells in the retina where they are organized into fascicles surrounded by glial cells, these axons acquire myelination behind lamina cribrosa.

Two main pathogenesis are attributed to the development of glaucoma.

1. Increased intraocular pressure leads to mechanical changes in the optic nerve head
2. Fluctuation of ocular perfusion pressure of the optic nerve head

In mechanical theory, they said that increased intraocular perfusion pressure alters the capillary blood flow by mechanical pressure on the lamina cribrosa thereby decreasing the axoplasmic flow and later narrows the openings of lamina cribrosa thereby the nerve bundles are damaged. Autoregulatory mechanisms are important for maintaining perfusion of the optic nerve head. Increased intraocular pressure alters the capillary blood flow at the lamina cribrosa by compressing the vessels and alters the blood flow in the annulus of Zinn which are the main supply for the laminar and prelaminar region of the optic nerve head.

Both mechanical and vascular changes leads to decreased axoplasmic transport which leads to damage and death of ganglion cells. Loss of axons is observed as decreased nerve fibre layer density.

AIM OF THE STUDY

To analyse the circadian fluctuation of mean ocular perfusion pressure and its role in progression of glaucomatous damage in eyes with primary open angle glaucoma, normotensive glaucoma and ocular hypertension.

PRIMARY OBJECTIVES

1. To investigate the diurnal change and diurnal pattern of variation in IOP, BP, MOPP in group of patients with POAG, NTG, OHT and to compare the results with those in a group of healthy age matched volunteers
2. To analyse circadian MOPP fluctuation as a most consistent risk factor for progression of glaucomatous damage

SECONDARY OBJECTIVES

To correlate the progression of visual field defects with MOPP fluctuation in cases of POAG, NTG and OHT.

AQUEOUS HUMOUR PRODUCTION

Maintenance of intraocular pressure is a major concern in glaucoma. Aqueous humour dynamics play a major role in the pathophysiology of glaucoma. Ciliary body, posterior chamber, anterior chamber, angle of anterior chamber and aqueous outflow channels are the principle structures concerned with aqueous humour dynamics.

Ciliary body is the continuation of choroid anteriorly at the ora serrata. The pars plicata is source of secretion of aqueous humour into the posterior chamber.

Boundaries of Posterior chamber are anteriorly by the posterior surface of the iris and part of ciliary body and posteriorly by lens and zonules and ciliary body bounds laterally. It contains about 0.05ml of aqueous.

Anterior chamber is bounded anteriorly by the posterior surface of the cornea and posteriorly by the anterior surface of the iris and part of ciliary body. It holds about 0.25ml of aqueous.

Angle of anterior chamber is the recess formed in between posterior surface of cornea and anterior surface of iris. The structures in the angle from anterior to posterior are

1. Schwalbe's line
2. Trabecular meshwork
3. Scleral spur and
4. Ciliary body band

The aqueous humour produced by the ciliary body enters the posterior chamber then through the pupil into the anterior chamber. From the anterior chamber, aqueous exits the eye through trabecular meshwork into Schlemm's canal. From there aqueous is carried by 25 – 30 collector channels into episcleral veins. Collector channels are broad near the Schlemm's canal and as they traverses they become narrow. There are two modes of drainage of aqueous through the aqueous channels. One is the direct system and next one is the indirect system.

In direct system, the vessels terminate directly into episcleral veins. Numerous collector channels are present in the indirect system which drain into deep and mid - intrascleral plexus and into the episcleral plexus before draining into the episcleral veins. Finally the episcleral veins drain via the anterior ciliary and superior ophthalmic veins into the cavernous sinus.

Juxta canalicular part of trabecular meshwork offers greatest resistance to aqueous outflow which is the conventional pathway of aqueous humour drainage. Another mode of drainage of aqueous humour is the uveoscleral drainage which is independent of intraocular pressure. Ciliary body continuously producing the aqueous humour. There must be a balance between the aqueous humour production and drainage and any deviation from it will have an impact on intraocular pressure.

FUNCTIONS OF AQUEOUS HUMOUR

1. Maintenance of intraocular pressure is the principle function of aqueous thereby maintain the architecture of the globe
2. It gives nutrition to avascular structures such as cornea, lens, anterior vitreous and trabecular meshwork
3. It is optically clear fluid helps in optical function of eye
4. It removes macrophages, blood, remnants of lens material and products of inflammation
5. In contains immunoglobulins which defend against the pathogen

The total volume of the aqueous is 0.31 ml , that is 0.25ml in anterior chamber and 0.06 ml in the posterior chamber. 1.336 is the refractive index of aqueous and it is slightly acidic and it has a density greater than that of water. The normal aqueous humour production rate is 2.3 microlitres per minute. Water is the main constituents of aqueous which is about 99.9%. It contains about 5 – 16 mg/100ml of protein and it has IgG, IgM but no IgA and IgD. The concentration of bicarbonate in the posterior chamber aqueous is higher than in the anterior chamber. Aqueous contains higher ascorbate when compared to plasma.

Because of the presence of blood ocular barrier, the protein and large molecules are prevented from entering inside the eye. Blood ocular barrier consists of

1. Blood retinal barrier and
2. Blood aqueous barrier

Blood retinal barrier which in turn consist of two parts

1. Outer blood retinal barrier and
2. Inner blood retinal barrier

Outer blood retinal layer is formed by tight junctions located between retinal pigment epithelial cells. Inner blood retinal barrier is formed by tight junctions of retinal capillaries.

Blood aqueous barrier is formed by tight junctions between non – pigmented epithelium of the ciliary body and non - fenestrated capillary endothelium of the iris. In inflammatory condition these tight junctions become leaky allowing proteins and other large molecular size particles will enter the eye and make the aqueous turbid. The cornea, lens, vitreous and retina are all have their own metabolic processes which also can modify the composition of aqueous humour. Hemodynamic factors will affect the production of aqueous humour at the level of ciliary epithelium by modifying the ultrafiltration.

FACTORS AFFECTING AQUEOUS HUMOUR FORMATION

- Diurnal variation

There is fluctuation of intra ocular pressure over the day. The most individual have maximum IOP in the morning and minimum at night or in early morning.

- Age and Sex

There is no gender predilection for aqueous humour formation. As the age progresses there is decline in the formation of aqueous. There is decline in aqueous humour production of about 3.2% per decade. Age have very little effect over aqueous humour production. The anatomical change in ciliary epithelial cells are thought to be the cause for decreased production of aqueous.

- Intraocular pressure

Aqueous humour production is dependent upon the changes in the IOP. The increased IOP in glaucoma is due to decreased outflow facility and not due to increased production.

- Blood flow to the ciliary body

Moderate reduction of blood flow to the ciliary body does not reduce the production of aqueous humour.

- Neural effects

Cervical sympathetic chain stimulation also decreases the production of aqueous.

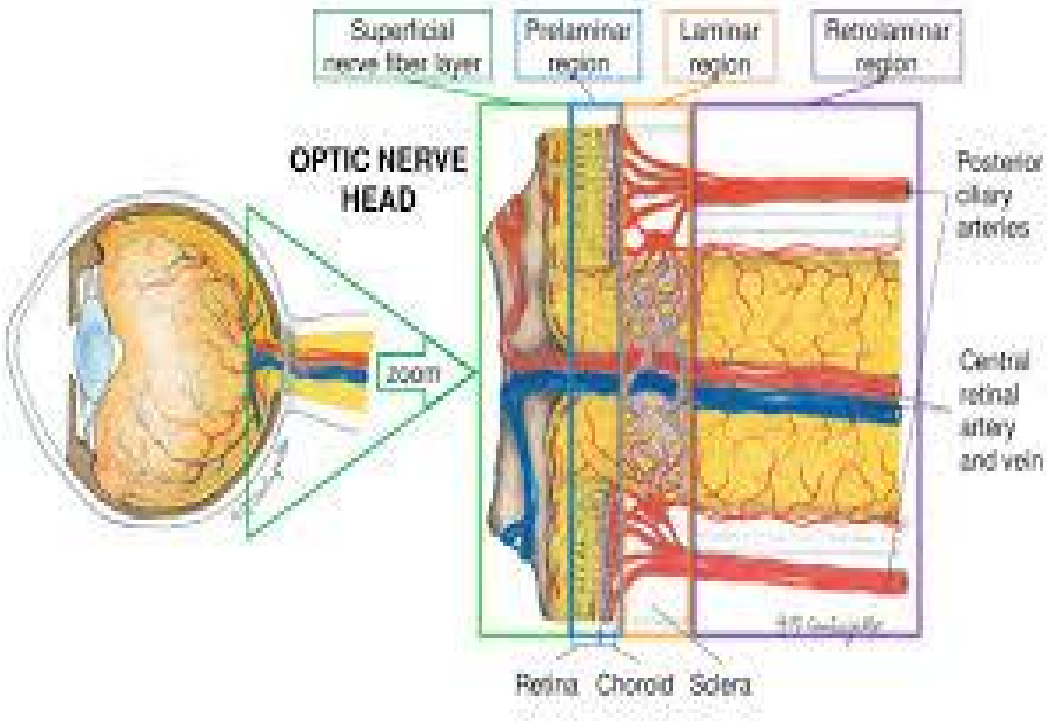
ANATOMY OF OPTIC NERVE HEAD

Optic nerve head is the intraocular portion of the optic nerve. It is bounded anteriorly by the vitreous and peripherally by the retina and sclera and posterior borders consists of pia, arachnoid and dura with cerebrospinal fluid located between the dura and arachnoid.

The size of the optic nerve head varies individually and its measurement also varies depending upon the instruments we are used. The normal optic disc size varies between 2.57 to 2.81mm.

ONH consist of four distinct regions with the corresponding blood supply. They are:

1. Surface nerve fibre layer
2. Prelaminar region
3. Lamina cribrosa region and
4. Retrolaminar region



Optic nerve head consists of internal limiting membrane called tissue of Elschnig, which separates the ONH from the vitreous. The inner limiting membrane of Elschnig consists of a central thickened area called central meniscus of Kuhnt. Border tissue of JACOBY consists of astrocytes which separates the nerve from choroid. Intermediate tissue of Kuhnt separates the nerve from the retina. Border tissue of Elschnig lies between the nerve and sclera.

The superior and inferior poles of optic nerve head consists of arcuate nerve fibres which are corresponding to the Bjerrun area. The peripheral fibres are more peripheral at the ONH and the centre of ONH consists of papillomacular bundle.

Surface nerve fibre layer

It is the first layer of the optic nerve head from anteriorly. It consists of nerve fibres that arises from retinal ganglion cell layer. While entering the ONH, they take a 90 degree bend and occupy the outer edge of the ONH. Fibres take a peculiar pattern while entering the scleral canal. The fibres from the peripheral part are deeper at the retina turning at right angle and travel at the rim. Where us the axons from the central part are more superficial and travel above the deep fibres and they occupy the central portion of ONH. These retinal ganglion cell fibres together form the neuroretinal rim.

Capillaries, glial tissue and astrocytes are also present in the neuroretinal rim. The reddish orange hue of the NRR is provided by the capillaries. Glial tissue and astrocytes provide structural support and they are more prone to damage in glaucoma.

Surface nerve fibre layer is supplied by the retinal arterioles from the central retinal artery which anastomosis with the vessels of prelaminar region. If there is presence of cilioretinal artery, it supplies the corresponding part of this layer.

Prelaminar region

This region also consists of optic nerve fibres along with the supporting glial tissue. Prelaminar region is supplied by peripappillary choroidal vessels.

Lamina cribrosa region

It is a specialized extracellular matrix consists of fenestration through which fascicles of axons exit the globe. Type IB astrocytes line the cribriform plates.The increased number of glial cells and smaller pore size in the nasal and temporal quadrant makes it less susceptible to glaucomatous damage compared to inferior and superior quadrant. In the superior and inferior poles , pores are larger in size and it is least supported by the glial tissue making it more susceptible to damage.

This part is supplied by centripetal branches from the short posterior ciliary arteries and also from the recurrent pial branches from the peripapillary choroid. They arise from the circle of Zinn Haller which is formed by anastomosis between medial and temporal posterior ciliary arteries.

The movement of oxygen and nutrients from the laminar capillaries provide nutrition to the axons. Lamina cribrosa is a very thin structure of about 300 – 400 microns containing pores through which axons bend and exit the globe without any damage.

The Retrolaminar Region

The retrolaminar region extends posterior to lamina cribrosa and extends to optic chiasma. Myelinization of optic nerve occurs in the retrolaminar region and so the width of optic nerve is larger. The pia, arachnoid and dura surrounds the optic nerve and the subarachnoid space of the optic nerve is continuous

with the subarachnoid space of the central nervous system which contains the CSF.

There are two circulatory systems which supply the retrolaminar region.

- Small branches from the central retinal artery forms the centrifugal system
- Peripheral centripetal system consisting of pial branches of central retinal artery and ophthalmic artery. It also consists of recurrent pial branches from circle of Zinn Haller.

Venous drainage

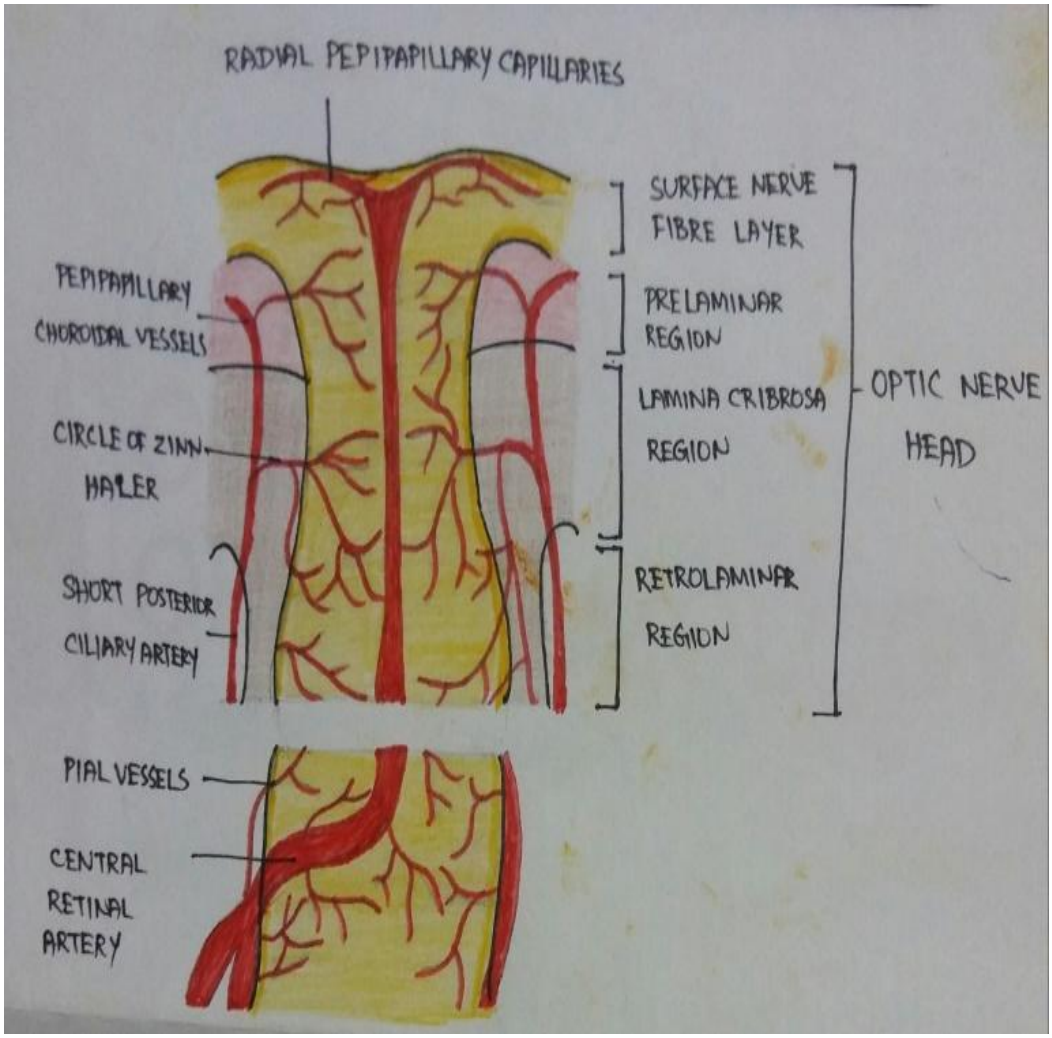
Predominant venous drainage into central retinal vein. The prelaminar part also drains into choroidal veins. The choroid, iris and ciliary processes drains into vortex veins. Communications exists between the retinal and choroidal circulation which are the Retinociliary veins and cilio – optic veins. In retinociliay veins, blood flows from the retina to the choroid where us in cilio – optic veins, blood flows from choroid to retina.

Blood flow in the intraocular portion of the optic nerve head comes primarily from the arteriolar branches of the choroidal and the short posterior ciliary arteries. In the retina, precapillary sphincters are absent and blood flow appears to be uninterrupted in all capillaries. The vascular bed of optic nerve head consists of capillaries and contribute to regulation of blood flow. The vessels within the ocular coat have the ability to sense the local pressure

conditions and local metabolic needs. So the intrapapillary and immediate adjacent vessels have the autoregulatory capabilities.

An important feature of glaucomatous damage is the individual variation in the susceptibility of the optic nerve to the intraocular pressure. If there is impaired autoregulation, it is inadequate for them to meet the IOP challenge resulting optic nerve head damage.

Glaucoma represents a spectrum where mechanical damage contributes to the damage at high IOP and vascular factors play a role at lower IOP. Compromised ocular blood flow and failure of vascular autoregulation in the optic nerve head is an important causative agent for causing glaucomatous optic neuropathy.



Clinical method for evaluating optic disc size

There are various methods for evaluating optic disc size

- Direct ophthalmoscope
- Slit lamp biomicroscopy

Direct ophthalmoscope

Welch – Allyn ophthalmoscope consists of five degree spot of light which projects a light with a diameter of 1.5mm with an area of 1.77 mm square on the retina when the ophthalmoscope is held at the usual range which is slightly smaller than an average sized optic disc. If the ONH is smaller than the spot light it can termed as smaller disc. If it is larger than the spot light then it can be estimated us larger disc and if it matches the ONH it is termed as average.

Slit lamp biomicroscopy

Another method for estimating the optic disc size by using high power convex lenses [66D, 78D, 90D]. vertical disc diameter is measured by placing a vertical slit over the disc and the beam is adjusted until it matches with the disc and the readings are taken from the slit lamp knob. Inner margin of the scleral ring is the disc margin. peripapillary scleral ring surrounds the optic disc and we cannot take measurements from the outer scleral ring which erroneously give false reading of large optic disc. Only the inner margin of the scleral ring should be taken for measurements. Correction factors are needed depending upon the lens used for estimating the disc size. correction factors for the lenses are 1 for 60D lens, 1.1 for 78D and 1.3 for 90D lens.

In normal eyes, the disc is vertically oval and the cup is horizontally oval which explains the pattern of NRR which is broadest in the inferior and superior poles and smallest in nasal and temporal poles. The cup – disc ratios are high in eyes with large optic disc and low in eyes with small optic disc.

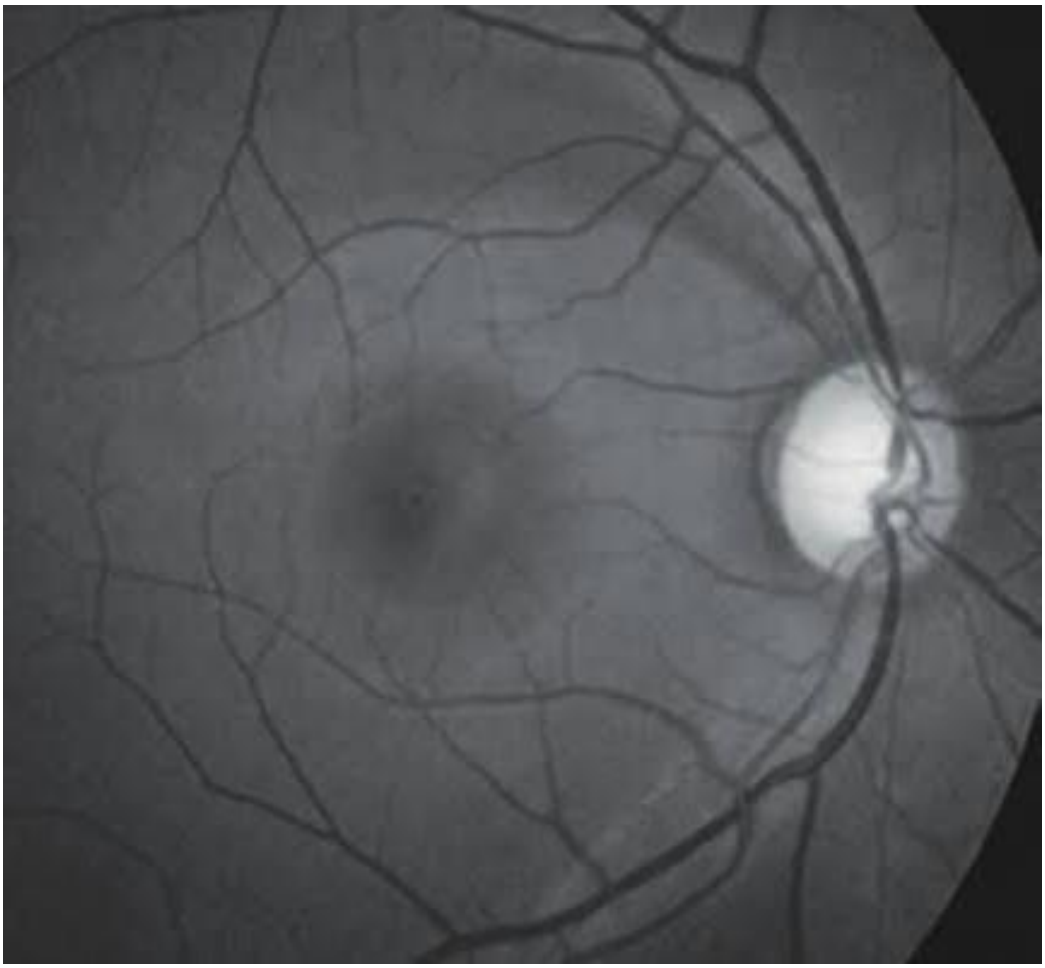
Neuroretinal rim is the area between the internal edge of the scleral ring and the border of the cup indicated by the position of vessels. In majority of individuals, the NRR follows the ISNT rule which means that NRR is broadest in the inferior pole followed by superior, nasal and temporal.

Retinal nerve fibre layer

Axons of ganglion cells, astrocytes and muller cells together form the retinal nerve fibre layer.Slit lamp biomicroscopy with high power convex lenses with red free light can be used to assess the retinal nerve fibre layer. Glistening of retina is seen where the retinal nerve fibre layers are more. The characteristics double hump pattern in imaging is due to the thick RNFL in the superior and inferior poles.

Due to the presence of axons of ganglion cells and microtubules RNFL reflects substantial amount of light and the remaining light is absorbed by the Retinal pigment epithelium and choroid. Red light penetrates the RPE and it is not reflected back and the blue light is completely reflected by the RNFL. In practice we are using red free light as it is reflected by the RNFL and the

remaining light is absorbed by the RPE and choroid which gives a dark background.



INTRAOCULAR PRESSURE AND TONOMETRY

The pressure which does not lead to glaucomatous damage is defined as normal intraocular pressure. Unfortunately this cannot be defined because individuals show different susceptibility at different pressure levels. We can describe it as distribution of IOP in general population. The mean IOP deviation was 15.5 + 2.57 mmHg and two standard deviation above the mean was 20.5 mmHg which is the upper limit of normal intraocular pressure.

Factors affecting intraocular pressure

- Genetics

In twin studies, IOP was correlated more between monozygotic twins compared to dizygotic twins. In the Beaver Dam Eye Study, seven loci of chromosomes 2, 5, 6, 7, 12, 15 and 19 were associated with IOP

- Environment

Cold environment will cause decrease IOP as it decreases the episcleral venous pressure. Tobacco smoking causes vasoconstriction thereby increases the episcleral venous pressure and increases the IOP. IOP is reduced in conditions like general anaesthesia but ketamine causes increased IOP. It is of utmost importance when examining the children under anaesthesia and in patients of penetrating ocular injury. While operating a case of penetrating injury or an intraocular surgery, the main aim is to avoid raised IOP that lead to extrusion of ocular contents.

Tracheal intubation causes increased IOP when compared with laryngeal mask airway. Corticosteroids increases the IOP. Systemic anticholinergic drugs, antihistamines, some psychiatric drugs, decongestants can provoke pupillary block or acute attack in patients with narrow angles. Scopolamine patches used for motion sickness also provoke angle closure.

Caffeine consumption is associated with rise in IOP. Studies have shown that intake of omega 3 fatty acids also reduces the intraocular pressure by increasing the outflow facility.

- Sex

There is no difference in IOP among male and female in 20 – 40 years. As the age advances, IOP is greater in women than men.

- Age

IOP generally increases with age. Measurement of IOP also influenced by the amount of co-operation, type of tonometer used and also the drug used for general anaesthesia.

- Ethnicity

Clinical studies showed that increased risk of open angle glaucoma among black individuals. But recent concepts states that thinner central corneal thickness, increased cup – disc ratio and higher IOP in black individuals increases the risk of glaucoma.

- Refractive error

Studies reported that a positive association between increased IOP and high myopia.

- Diurnal and postural variation

There is increased nocturnal IOP which is physiologically normal because while sleeping, body is in supine posture and head down tilt which is greater in glaucomatous eyes and is related to elevated episcleral venous pressure. The main aim of measuring diurnal variation is to avoid missing a pressure elevation with single reading.

Measuring a diurnal variation is very difficult in busy clinical practice. So some people measures the IOP in the office hours every 2 hours from early morning to evening. IOP is also regulated by catecholamines and steroids level.

Studies have shown that patients with diurnal IOP range of about 5.4mmHg have risk of nearly six times in visual field progression within 8 years when compared to diurnal range of 3.1mmHg.

- Exertional influence

Playing a high resistance musical instruments, Valsalva maneuver, electrical shock increases the IOP by increasing the episcleral venous pressure. Obese patients have artificially elevated IOP, because they strain so much to reach the instruments. In such patients, IOP can be measured by Perkins

tonometer. IOP is decreased by exercises. In some patients of pigmentary glaucoma,exercise can induce dispersion of pigments into the anterior chamber with raised IOP which can be minimized by use of pilocarpine before exercise.

- Eye movement

Movement of eyes and contraction of extraocular muscles can modify the IOP. IOP can be increased by 10mmHg by blinking. Eyelid squeezing raise the IOP as high as 90mmHg. Voluntary eyelid widening increase the IOP by 2mmHg. There is raised IOP on up-gaze in normal individuals which is augmented in thyroid ophthalmopathy.

- Intraocular conditions

IOP may be decreased in anterior uveitis due to decreased aqueous humour production. Rhegmatogeneous retinal detachment is associated with decreased IOP because of reduced outflow and there is shunting of aqueous from posterior chamber into vitreous and the retinal hole into the subretinal space.

TONOMETERS AND TONOMETRY

Tonometry is the method of estimating intraocular pressure. Tonometer is an instrument to measure the intraocular pressure by using the physical properties of the eye.

Tonometry can be classified as

1. Direct tonometers and
2. Indirect tonometers

Direct tonometers

It is invasive method of measuring IOP. A catheter is introduced into the anterior chamber and it is connected to a manometric device which records the IOP. It is a most accurate method but it is not feasible.

Indirect tonometers

It is broadly classified as

- contact and
- non contact method

Indentation tonometers and applanation tonometers are broadly classified under the category of contact tonometers.

Indentation tonometers

They measure the deformation of the globe in response to a standard weight. The shape of the corneal deformation with this type of tonometer is a truncated cone. This type displaces large volume of fluid and it is termed as high displacement tonometers. It requires conversion table to calculate the IOP.

Applanation tonometers

Simple flattening is the type of corneal deformation produced by applanation type of tonometers. There are two types based on

- variable force

It measures the force that is required to applanate a standard area of corneal surface.

Eg. Goldmann applanation tonometer

- variable area

It measures the area of cornea flattened by a known weight. Volume of fluid displacement is large and it requires conversion table.

Eg. Maklakoff tonometer

Non contact tonometer

It uses a puff of air to deform the cornea and it measures the time required to create a standard amount of corneal deformation.

Goldmann Applanation tonometry

It is a variable force type of applanation tonometer. It is based on Imbert Fick law which states that the external force against the sphere [W] equals the pressure in the sphere [Pt] times the area flattened by external force [A].

$$W = Pt \times A$$

This law requires that the cornea should be perfectly spherical, dry, perfectly flexible and thin. The cornea is aspherical, wet, neither flexible nor thin. Lack of flexibility of cornea requires a force to bend the cornea and it is necessary to modify the Imbert-Fick law.

$$W + S = Pt\ A_1 + B$$

Surface tension [S] is created by the moisture in the eye, force is required to bend the cornea [B]. Outer area of flattening of cornea [A] is not the same as the inner area of flattening [A1]. W equals Pt , S balances B when A_1 equals 7.35 mm^2. When an external area of corneal applanation is 3.06 mm, this internal area of applanation is obtained. The volume of displacement produced by a standard goldmann applanation tonometer is about 0.50 mm^3. The grams of force required to flatten the cornea multiplied by ten is converted to mmHg.

Instrument

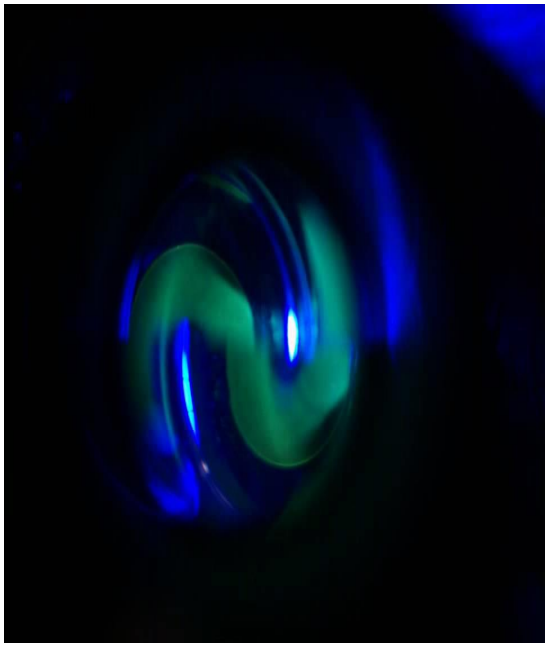
The instrument is mounted on a slit lamp. The examiner views is directed through the centre of a biprism. The two beam splitting biprism is used to applanate the cornea. The prism convert the circular area of contact into two semicircles. When 3.06 mm of cornea is applanated , the inner margins of semicircles overlap. The prism is attached to the housing by a rod which contains coil spring and levers are used to adjust the force to applanate the cornea.

Technique

Under topical anaesthesia, tear film is stained with fluorescein. The biprism is illuminated with cobalt blue light. The angle of illumination of biprism should be 60 degree and bright illumination is used for viewing the biprism.The biprism is brought into contact with the cornea and fluorescein semicircles are seen through the biprism. Until the inner edges coincides, the force against the cornea is adjusted. This is the final point and the readings are taken from the dial and it is multiplied by ten to obtain intraocular pressure.

Sources of error with GAT

- The amount of fluorescein is very important because it influences the IOP. Inadequate fluorescein gives hypofluorescence and it is difficult to appreciate the mires which will give false readings.
- Inappropriate vertical alignment and wider meniscus gives false high IOP readings.
- Thin corneas will underestimates the IOP and thick cornea will give false high IOP readings.
- Mires are distorted in irregular corneas.



Role of central corneal thickness in GAT

Goldmann applanation tonometry is based on central corneal thickness of about 520 microns. The resistance of cornea is changed when there is change in central corneal thickness and it affects the accuracy of IOP. Less force is needed to applanate thinner cornea and it will lead to underestimation of IOP and more force is required in case of thicker cornea and leads to overestimation of IOP.

Ehler et al., interpolated the deviation of CCT from 520 microns will cause a change in IOP by 0.7mmHg per 10 microns.

Disinfection of Goldmann applanation tonometer

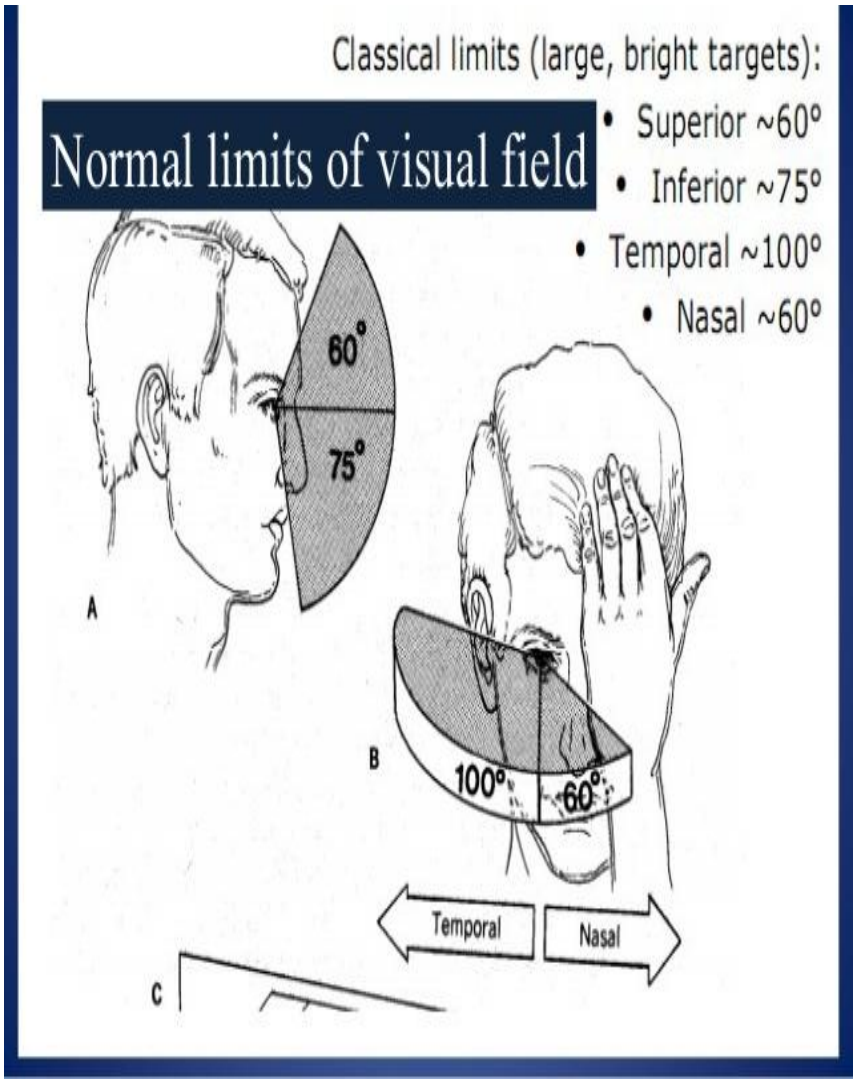
As GAT contact with the eye, there is risk of transmitting adenovirus, Herpes simplex virus type 1. In addition to this there is also a potential risk for transmitting HIV and Hepatitis virus although there is no evidence to support the transmission of HIV by tears.

Adenovirus was inactivated by soaking the applanation tip for 5 to 15 minutes in sodium hypochlorite or 70% isopropyl alcohol.

Herpes simplex was inactivated by 70% isopropyl alcohol. Hepatitis B virus was removed by continuous rinsing of applanation unit with running water for ten minutes. Wiping the applanation unit with 3% hydrogen peroxide or 70% isopropyl alcohol disinfect HIV. It is very important to remove the disinfectant from the contact surface of the applantion unit before use as it cause corneal defects.

VISUAL FIELD

Perimetry is used for evaluation of visual field. Visual field is the part of the surrounding that is visible to the fixing eye. It extends superiorly 60^0, nasal 60^0, inferior75^0 and temporal 100^0.



Visual field testing compliments other investigation in diagnosing a case of glaucoma. It is very useful tool for diagnosis and follow up of glaucoma patients.

The central 30^0 visual field analysis using automated perimetry is currently the gold standard method. Non-glaucomatous visual field changes are also picked up by perimetry.

There are two types of perimetry

- Kinetic perimetry and
- Static perimetry

Kinetic perimetry

When the hill of vision is kinetically analysed along X – Y axis. The same threshold points are located and they are called isopters. It is highly dependent upon the skill of the technician.

Eg. Bjerrum's field

Static perimetry

When the island of hill of vision is explored along Z axis. It is used to find the retinal sensitivity at various fixed points. The stimulus size and background illumination remains constant and the intensity of the stimulus is varied according to the procedure.

Patient looks at a fixation point at the centre of bowl and light stimuli are presented at fixed locations and the patient presses the button when he perceived the stimulus.

Apostillbs are units for expressing light sensitivity, 0 dB value equals to 10,000 aposillbs which is the brightest light. A high decibel value means low illumination and low decibel means bright light.

Eg. Octopus perimetry & Humphrey perimetry

Octopus perimetry

The cupola type of perimeter are 101 and 900 series. The 123 and 300 series are infinity projection type of perimetry.

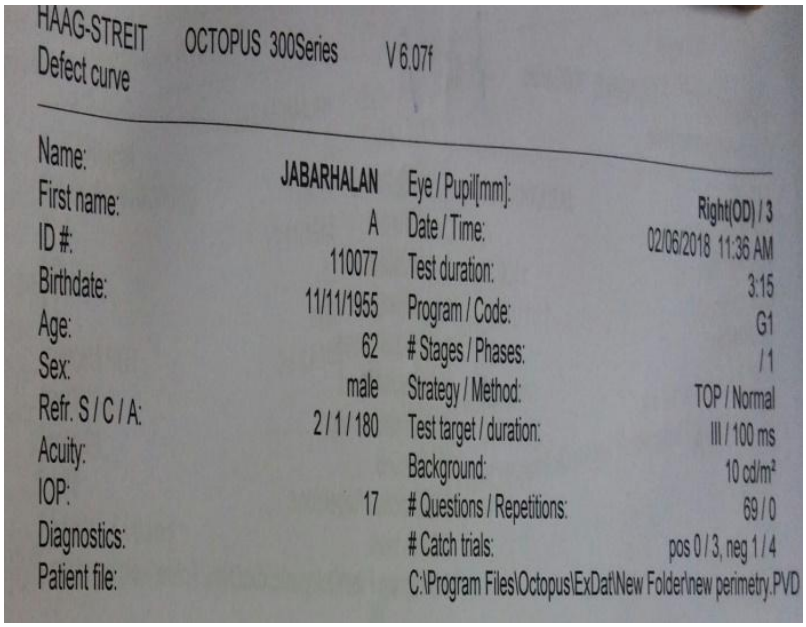
Patient Data

It consists of patient data and test data in the first part. Age of the patient has to entered in the first column which is important for age matched comparison. Proper correction of refractive error for distance is to be done otherwise field shows generalized depression or scotomas.

Examination data

It consists of examined eye and size of the pupils on the top. It includes date , time of examination and test duration. The examination program and strategy should be prefixed for a given patient so that it is easy for comparison. It is always wise to compare the field with the same program and strategy otherwise it will become unreliable. It also displays total number of questions and repetitions. If the patient lost fixation or if they blink at the time of stimulus presentation questions will be repetited. Octopus perimetry contains

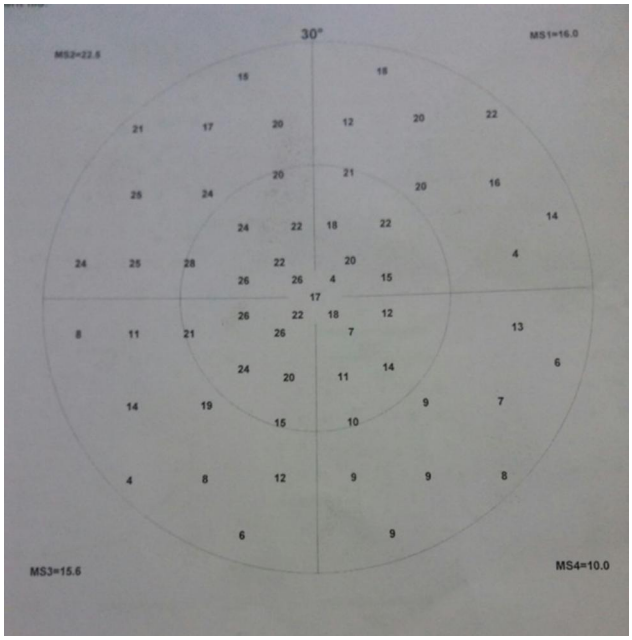
positive and negative catch trials which are indicators for the reliability of the test.


HAAG-STREIT OCTOPUS 300Series V 6.07f
Defect curve

Name:	JABARHALAN	Eye / Pupil[mm]:	Right(OD) / 3
First name:	A	Date / Time:	02/06/2018 11:36 AM
ID #:	110077	Test duration:	3:15
Birthdate:	11/11/1955	Program / Code:	G1
Age:	62	# Stages / Phases:	/ 1
Sex:	male	Strategy / Method:	TOP / Normal
Refr. S / C / A:	2 / 1 / 180	Test target / duration:	III / 100 ms
Acuity:		Background:	10 cd/m²
IOP:	17	# Questions / Repetitions:	69 / 0
Diagnostics:		# Catch trials:	pos 0 / 3, neg 1 / 4
Patient file:		C:\Program Files\Octopus\ExDat\New Folder\new perimetry.PVD	

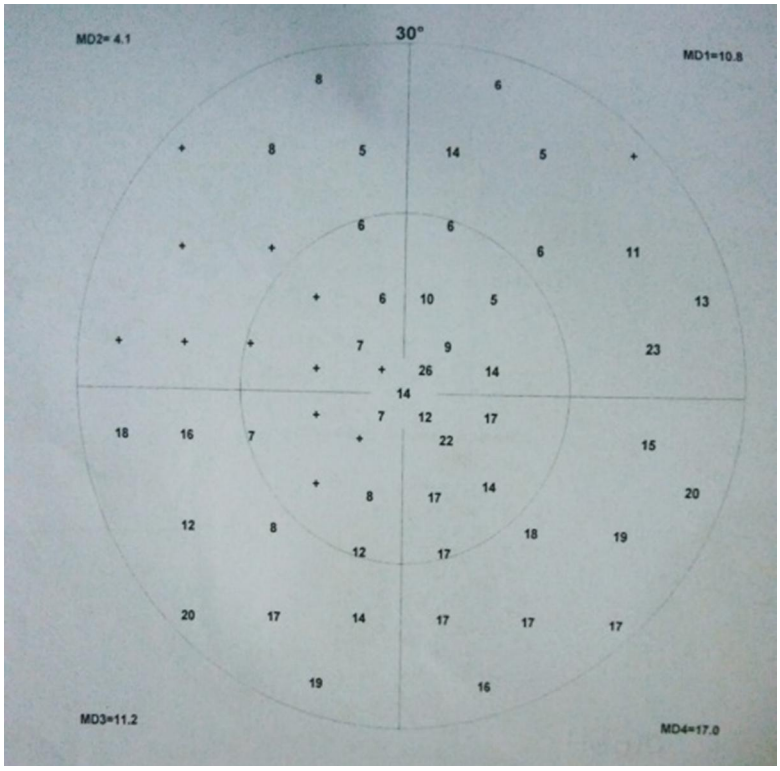
Value table

The actual measured retinal sensitivity are plotted in each test locations. As the age advances, persons retinal sensitivity decreases.



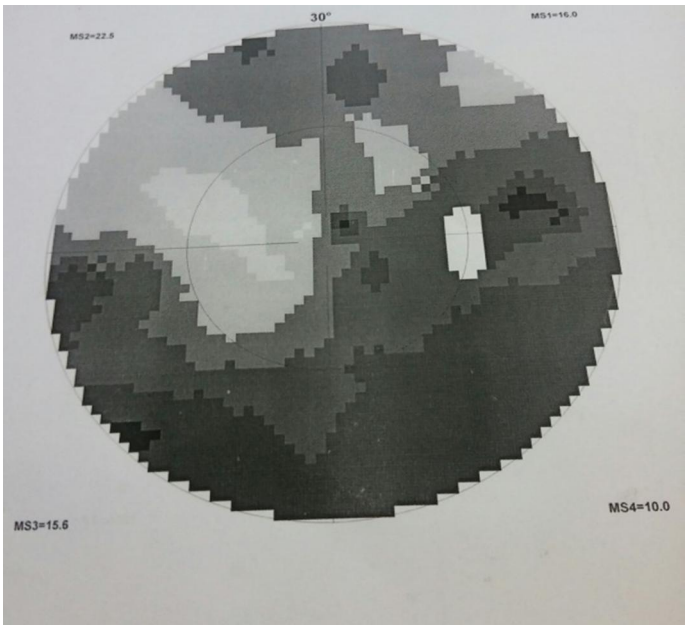
Comparison table

It is an age matched comparison of the value table. It contains + and numerical vaues. The numerical value represents the deviation from the normal and + symbol indicates normal value.



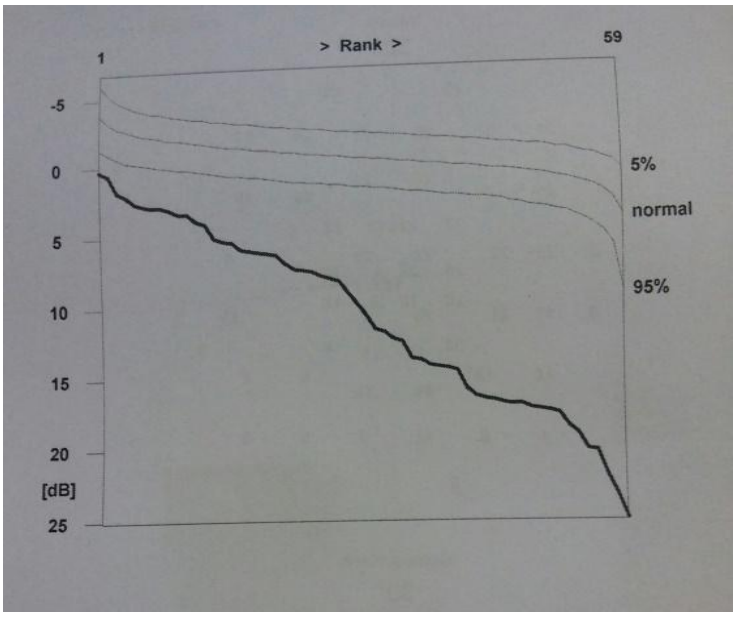
Gray scale

It is a graphical representation of the visual field. It is the representation of hill of vision in two dimensions. Normally the centre of the graph will be light in colour due to higher retinal sensitivity while in periphery it is darker because of low sentivity. It is used to explain the severity of the disease to the patient.



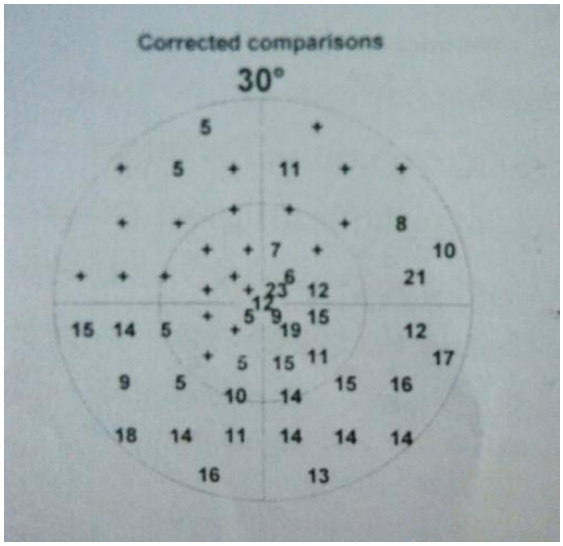
Bebie curve

Graphical representation of measured retinal sensitivity in decreasing order from left to right. It is a cumulative defect curve which gives quick assessment of depth and characteristic of defect. The diffuse loss is calculated and it is represented at the bottom of the curve.



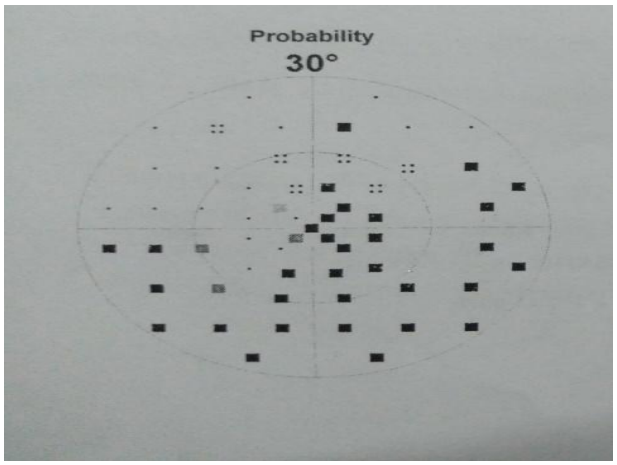
Corrected comparison table

It gives the true sensitivity after eliminating media opacities. It is the comparison table minus deviation measured in Bebie curve.



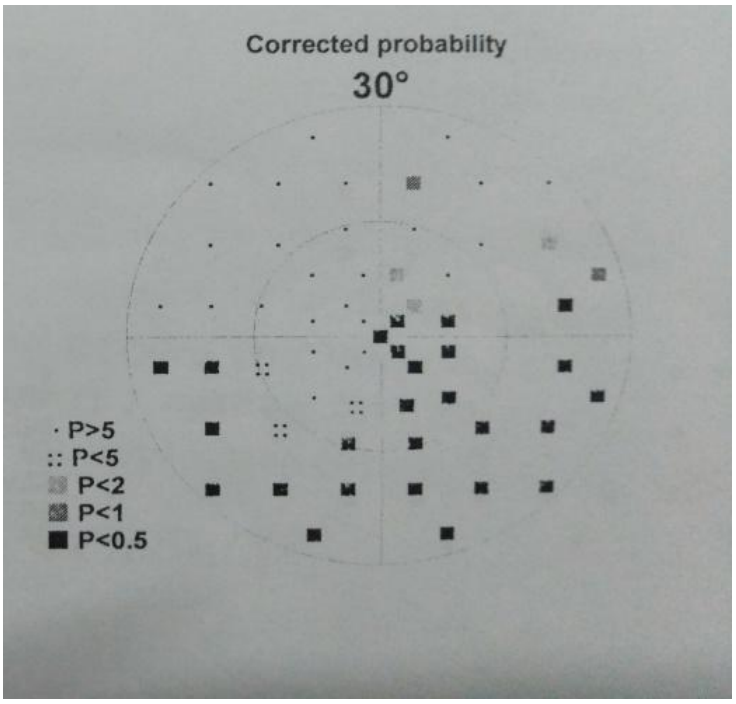
Probability plot

It displays the values in comparison table as symbols. It represents the statistical significance, the darker being most significant with P < 0.5 percent. This means that this value is normal in 0.5 percent of normal population.



Corrected probability plot

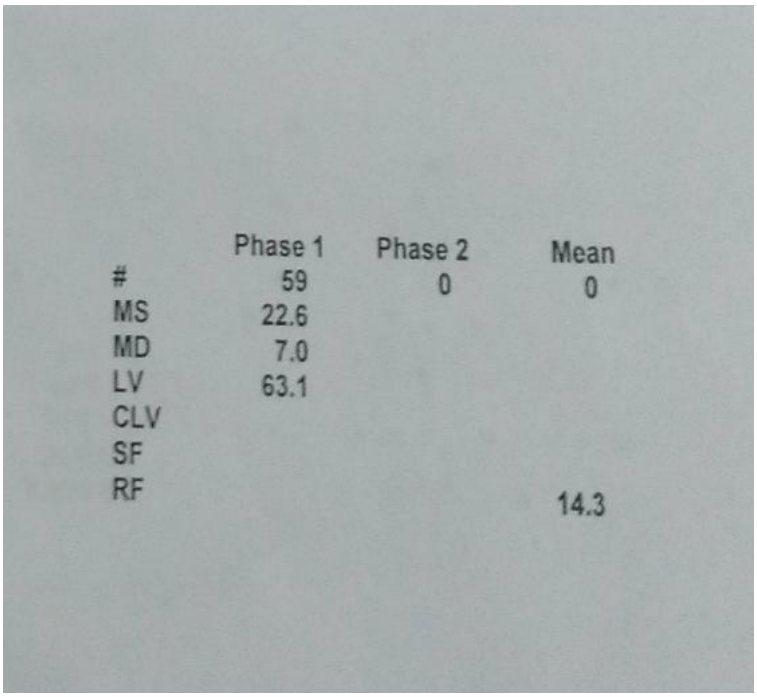
Graphic display of corrected comparison values. Localized defects due to nerve fibre layer are highlighted. This also contains symbols which represents increasing significance with darker shades.



Visual field indices

Mean sensitivity (MS) is the first data in the table, which is the average of all retinal sensitivity measured in each test locations in decibel. It gives overall picture of retinal sensitivity. Mean defect is the age corrected mean sensitivity. A value between -2.0 and +2.0 is the normal range for mean defect (MD). Loss variance (LV) is a very sensitive index for glaucoma. Short term fluctuations (SF) are obtained by retesting already tested locations. Corrected

loss variance measures localized loss independent of short term fluctuations. Reliability factor (RF) is calculated from the positive and negative catch trials.



	Phase 1	Phase 2	Mean
#	59	0	0
MS	22.6		
MD	7.0		
LV	63.1		
CLV			
SF			
RF			14.3

PRIMARY OPEN ANGLE GLAUCOMA

POAG is a chronic progressive anterior optic neuropathy which is accompanied by characteristic cupping, visual field defect with open angle in gonioscopy and no systemic or ocular conditions. In all the cases, intraocular pressure is elevated above the nstatistically normal range. It is characterized by damage to the ganglion cells and optic nerve.

Primary open angle glaucoma is a slowly progressive disease and is the most common form of glaucoma. Patients with POAG are usually asymptomatic and they are detected on screening programs.

Intraocular pressure is the risk factor for POAG and it is not the only risk factor. The prevalence of POAG increases with age. It has preponderance to affect black individuals. Myopic individuals are more prone to develop POAG and it is difficult to diagnose glaucoma in them because of broad, shallow cup with indistinct disc margins and thin corneas in myopia give false reading of IOP.

People with thin corneas are more susceptible to optic nerve damage. POAG appears to have genetic predisposition. Vascular disease has been a predisposing factor for development of glaucoma.

POAG is a bilateral disease and is often asymmetric on presentation, they have moderate or advanced damage in one eye and no or minimal change

in other eye. It is very important to consider that IOP fluctuates normally in every individual but it is greater in glaucoma patients.

The eyes with POAG have increased cup to disc ratio because of loss of retinal ganglion cells which leads to thinning of neuroretinal rim and there is loss of retinal nerve fibre layer. They have open angles on gonioscopy and arcuate nerve fibre layer defect in visual field examination corresponding to the optic nerve head changes.

Increased resistance to aqueous outflow is the main pathogenesis leading to increased intraocular pressure and consequent optic nerve head damage. Relative afferent pupillary defect may be present in patients of unilateral or asymmetric glaucoma which can be elicited by swinging flash light test.

Meticulous clinical examination is necessary to differentiate primary open angle glaucoma from other glaucoma. Visual field defects mimicking glaucoma are caused by many retinal and optic nerve diseases that will need careful neuro-ophthalmic evaluation and these defects are nonprogressive. Congenital optic nerve anomalies such as optic nerve pits and colobomas are associated with large cup and they need to be differentiated. We have to start the patient on antiglaucoma medications to lower the intraocular pressure which is the causative agent for optic nerve damage.

Treatment is very crucial in younger individuals and they are followed up regularly to modify the treatment if necessary. We have to set a target intraocular pressure for each individual and it is the pressure below which loss of retinal ganglion cell other than ageing cease to occur. The major goal of glaucoma treatment is to preserve the vision for the rest of the period of their life and to maintain a quality of life.

Normotensive Glaucoma

NTG can be considered under the spectrum of primary open angle glaucoma. It is also referred as Low tension glaucoma. They have thin neuroretinal rim similar to POAG. Disc hemorrhages were more common in normotensive glaucoma suggesting that vascular factor as a pathogenesis of NTG. Nerve fibre layer defects are more localized in the normotensive glaucoma patients which are closer to fovea compared with diffuse loss in POAG.

Associated findings include complete occlusion of carotid artery, increased resistance of ophthalmic artery by colour doppler, arteriolar narrowing surrounding the optic nerve.

A study also showed that delayed choroidal circulation in normotensive glaucoma and delayed retinal circulation in primary open angle glaucoma patients.

NTG patients have dip in nocturnal BP. There has been association of increased blood viscosity and hypercoagulability states. Treatment includes antiglaucoma medications and additional factors such as cardiovascular and neurological issues should be addressed.

Ocular hypertension

Individuals with IOP greater than two standard deviation above the mean are termed as ocular hypertensive. Open angle on gonioscopy. Optic nerve and visual fields shows no signs of glaucomatous damage. It is estimated that approximately ten percent of the individuals will progress to POAG. The risk factors for conversion of OHT to POAG are

1. High IOP
2. Increased cup – disc ratio
3. Disc hemorrhages
4. Asymmetry of > 0.2 between two eyes
5. Retinal nerve fibre layer defect
6. Thin central corneal thickness
7. Advanced age
8. Family history of glaucoma

REVIEW OF LITERATURE

Mitra sehi et all.,2005

This study was conducted to investigate diurnal change and variations in IOP, SBP, DBP with untreated POAG group. IOP, SBP, DBP were measured in between groups of POAG and normal subjects, every hour between 7am to 10pm. MOPP and relative diurnal change was calculated as percentage decrease from maximum.

This study suggested that, relative diurnal change in IOP was similar in both POAG and normal subjects but MOPP showed a significant difference. MOPP significantly decreased after lunch and was its lowest in POAG at 7am, when IOP was at its highest. A significant association was found between DBP and IOP in POAG

Kyung Rim Sung et all.,2009

This study was done to investigate the relationship between MOPP, MAP, IOP and VF progression with NTG.

This study concluded that unstable 24 hour MOPP was associated with glaucomatous VF progression. This result suggests that reduction in nocturnal OPP leads repetitive daily ischemic insults, followed by reperfusion damage. These cumulative ocular tissue injuries may manifest as progressive glaucomatous VF deterioration.

Jaewan choi et all.,2007

This study was conducted to investigate systemic and ocular hemodynamic risk factors for glaucomatous damage in eyes with NTG. 113 patients were subjected to 24 hour IOP monitoring, BP, Humphrey visual field, Scanning laser polarimetry.

Circadian MOPP fluctuation was the most consistent risk factor for glaucoma severity in eyes with NTG. Percentage decrease in diurnal MOPP was found to be significantly larger in patients with untreated POAG than in normal groups

Study concluded that larger circadian MOPP fluctuation was associated with decrease MD, reduced TSNIT average. Increased CMF is associated with worsened visual field indices in univariate regression analysis.

Jaewan choi et all.,2006

To investigate BP, IOP and MOPP in patients with untreated NTG and to investigate the relationship between circadian MOPP fluctuation and visual field.

In this study, 132 patients on NTG were included and they were evaluated for 24 hours in a hospital. Measurements were taken every 2 hours between 12pm to 10am and every three hours between 12 am to 6am. Circadian MOPP fluctuation, visual field scores and CPSD at baseline were investigated.

They classified into non-dipper group, dipper group and overdipper group. SBP fluctuation was a significant predictor of CMF with increase of 10mmHG in SBP fluctuation equating to increase of 1.0mmHg in CMF. DBP fluctuation was a significant predictor of CMF with an increase of 10mmHg in DBP fluctuation equating to increase of 5.4mmHg in CMF. High percentage of patients with NTG had marked nocturnal BP reduction. Marked circadian MOPP fluctuation was associated with peak in fluctuation of IOP, SBP, DBP. Larger CMF have an important role in pathogenesis of glaucomatous optic neuropathy in NTG patients.

Kyung Rin Sung et all.,2011

A study was conducted to investigate the visual field progression in treated NTG patients with fluctuating ocular perfusion pressure. 101 eyes of NTG patients were studied and they were followed up for a period of 4 years. Every patient was subjected to visual field examination with standard automated perimetry and IOP was monitored for 24 hours in the hospital. CCT measured with ultrasonic pachymetry. VF defects were defined as those who have glaucomatous defects in two reliable consecutive tests. They concluded that MOPP fluctuation is associated with VF progression and so the NTG patients should be regulary monitored for the fluctuating MOPP.

Takaharu Tokunaga et all., 2004

Assess the relationship between nocturnal BP reduction and progression of VF in patients with NTG or POAG. Thirty eight patients were included in the study, out of which 23 were NTG patients and 15 were POAG patients. These patients were monitored for 48 hours ambulatory BP monitoring. They were followed up for a minimum period of 4 years. All patients underwent VF test atleat five times and the progression was determined by MD slope analysis system installed in Humphrey visual field analyzer. They suggest that disturbance of physiological dip, plays a vital role in progression of glaucoma.

Elisabeth Renard et all., 2010

This study was conducted to study the nocturnal rhythm of IOP, OPP in patients with newly diagnosed NTG. NTG patients with glaucomatous disc changes with corresponding field defects were included in the study group. Mean arterial pressure fluctuations were defined as the difference between highest and lowest MAP values. If the nocturnal dip is > 20%, they are categorized under extreme dippers, if it is > 10% they are called as physiological dippers and if it is between 0% to 10%, they are called as non-dippers. IOP readings are taken using electronic tonometer hourly. IOP was measured between 8am to 8pm in sitting posture and 9pm to 7am in supine posture. Every 15 minutes blood pressure was recorded during the day time and every 30min during the night time. In this study 90% of NTG exhibit diurnal or nocturnal acrophase of IOP reading. They said that ocular perfusion pressure

was strongly associated with that of blood pressure and pathophysiological mechanism of NTG are multiple like abnormal OPP rhythm, IOP fluctuation , endothelial dysfunction or obstructive sleep apnea.

Young Rok Lee et all.,2012

He compared the 24 hour fluctuation of IOP and VF progression with it in patients of NTG.

177 eyes with NTG were monitored for 24 hour IOP fluctuation and visual field was done for every patient using Humphrey visual field analyzer. During the night time patients were awakened and after a rest period of 10 minutes, IOP readings were taken. Simultaneously BP was also recorded. There was an IOP peak at 6am. They found that 24 hour OPP fluctuation was due to significant BP fall at night and it was the most consistent risk factor for the severity and progression of glaucoma.

MATERIALS AND METHODS

This Prospective study was conducted at Regional Institute Of Ophthalmology, Government Ophthalmic Hospital, Chennai on patients who visited glaucoma services from 01/05/2017 to 01/05/2018. This study was conducted after obtaining approval from the institutional ethical committee. Patients were explained about the procedure in detail and informed consent was obtained for the same.

Study Design

This study is a prospective clinical study. Patients with POAG, NTG, OHT and healthy volunteers were grouped as Primary open angle glaucoma (Group 1), Normotensive glaucoma (Group 2), Ocular Hypertension (Group 3) and Healthy volunteers (Group 4). The patients who met the inclusion and exclusion criteria were only included in the study. This study was conducted at Regional Institute Of Ophthalmology, Government Ophthalmic Hospital, Chennai on patients who visited glaucoma services. This study was conducted after obtaining approval from the institutional ethical committee. Patients were explained about the procedure in detail and informed consent was obtained for the same.

Government Ophthalmic Hospital, Chennai on patients who visited glaucoma services. This study was conducted after obtaining approval from the

institutional ethical committee. Patients were explained about the procedure in detail and informed consent was obtained for the same.

Patients were divided into four groups.

Group 1 : primary open angle glaucoma patients

Group 2 : Normotensive glaucoma patients

Group 3 : ocular hypertension patients

Group 4 : Healthy population

Selection of cases

Inclusion criteria

All consented patients with

- Visual acuity > 6/36
- Normal anterior chamber depth
- Open angle on gonioscopy
- Age > 40 years
- Newly diagnosed case of POAG, NTG and OHT

Exclusion criteria :

- All secondary glaucomas
- Advanced glaucomatous changes
- Profound visual field defects involving the central 10 degree of fixation
- Visual acuity < 6/36

- Patients on long term antiglaucoma medications (> 2 years)

Materials required

- Snellens visual acuity chart
- Slit lamp biomicroscopy
- Goldmann applanation tonometer
- Sphygmomanometer
- 90D lens
- Goldmann gonioscopy lens
- Ultrasonic pachymetry
- Octopus perimeter

STUDY METHOD

Procedure

All the patients subjected to study were clinically examined in our glaucoma clinic. Patients satisfying the inclusion criteria were only included in the study. Written informed consent was obtained from the patient.

Patients were allocated into their respective groups based on the diagnosis. POAG group consist of 25 patients, NTG group consist of 15 patients, OHT group consists of 10 patients and 50 people were included in healthy volunteer group.

On the day of admission, best corrected visual acuity was calculated for every patient using Snellen's visual acuity chart. All the patients underwent detailed anterior segment examination under slit lamp biomicroscopy. Ultrasonic pachymetry was used to measure the central corneal thickness. Gonioscopic examination was done for every patient and findings were recorded. Dilated fundus examination was done using slit lamp biomicroscopy with 90D lens to look for optic disc changes. Octopus 300 series perimetry with G1 program with TOP strategy was used to document the visual field. Blood pressure was recorded with sphygmomanometer in the left upper arm in sitting posture after the subject had been seated for 3 minutes. Patients are asked to restrain from physical activities that could affect blood pressure and to avoid caffeine and alcohol. Intraocular pressure was recorded using Goldmann applanation tonometer every four hours from 12 noon to 12 noon for 24 hours, simultaneously systolic and diastolic blood pressure also recorded fourth hourly.

Mean arterial pressure was calculated by using the formula DBP + 1/3 [SBP – DBP]. Systolic ocular perfusion pressure was calculated by SOPP= SBP – IOP. Similarly diastolic ocular perfusion pressure was calculated by DOPP = DBP – IOP. Mean ocular perfusion pressure was calculated by MOPP = 2/3 [MAP – IOP]. Circadian MOPP fluctuation was defined as the difference between highest and lowest mean ocular perfusion pressure values recorded during 24 hour phasing. Mean defect and loss variance were the parameters in

octopus 300 series perimeter used for analyzing the progression of visual field defect.

FOLLOW UP :

All the subjects were followed up regularly for every 3 months. At follow up visits, twenty four hour IOP monitoring was done for every individuals with simultaneous blood pressure measurement. From that MAP, SOPP, DOPP and MOPP were calculated. At each visit, visual acuity was measured with Snellen's visual acuity chart, detailed anterior segment examination under slit lamp biomicroscopy. Dilated fundus examination using slit lamp biomicroscopy with 90D lens to look for progression of the disease. Gonioscopy was done to visualize the anterior chamber angle. Octopus 300 series perimetry was done every 6 months. At the follow up visits, field examination is done with the same octopus 300 series machine with the same program and same strategy. Mean defect and loss variance are the parameters noted down for the progression.

Outcomes measured:

Primary outcome measures:

- To investigate the diurnal change and diurnal pattern of variation in IOP, BP, MOPP in group of patients with POAG, NTG and OHT and to compare the results with those in a group of healthy age matched volunteers.

- To analyse the circadian MOPP fluctuation which is a most consistent risk factor for progression of glaucomatous damage in a tertiary care centre.

Secondary outcome measures

- To correlate the progression of visual field defects with MOPP fluctuation in cases of POAG, NTG and OHT.

STATISTICAL ANALYSIS PLAN

Data was entered in Microsoft Excel 2010 and analysed using IBM SPSS statistics v23.0. The continuous variables were presented with mean ± standard deviation or mean and standard error of mean. Discrete variables were expressed in percentages. The circadian trends were expressed graphically by error plot with mean and 2 standard deviation. The difference in mean values between the groups was done my analysis of variance test (ANOVA).the correlation between the fluctuations of MOPP value and Visual progression was depicted by scatter plots and significance was seen by spearman's rank correlation coefficient. A 'p value' of less than 0.05 was considered as statistically significant.

OBSERVATIONS AND RESULTS

In this study a total of 100 persons were enrolled of which 50 persons with glaucoma and 50 controls were enrolled. The characteristics of the study population are given in the table1.

Table1: Baseline Characteristics of study participants (n=100)

Variable	**Groups**	**Catergory**	**Mean (SD) in years**	**MIN – MAX in years**
Age	Cases (n=50)	POAG (n=25)	61.76 (5.73)	49 - 71
		NTG (n=15)	48.20 (7.13)	37 - 65
		OHT (n=10)	43.40 (6.52)	32 - 56
	Controls (n=50)		51.48 (8.49)	37 - 65
Variable	**Groups**	**Catergory**	**Number**	**Percentage**
Males	Cases	POAG	15	15%
		NTG	10	10%
		OHT	3	3%
	Controls		28	28%
Females	Cases	POAG	10	10%
		NTG	5	5%
		OHT	7	7%
	Controls		22	22%

The mean age of study population was 52.75 (9.38) with a minimum of 32 years and maximum of 71 years. There were 56 males (56.0%).

The average age of the Cases group was 54.02 (10.12) while that of the control groups was 51.48 (8.49). The difference in mean was not statistically significant (p=0.177). Hence the two groups are comparable.

There were 28 males and 22 females in both cases as well as controls. Hence the two groups are comparable.

II.Circadian Pattern

A) Intra ocular pressure

Fig 1a: Trends of Intra-Ocular Pressure Rt Eye

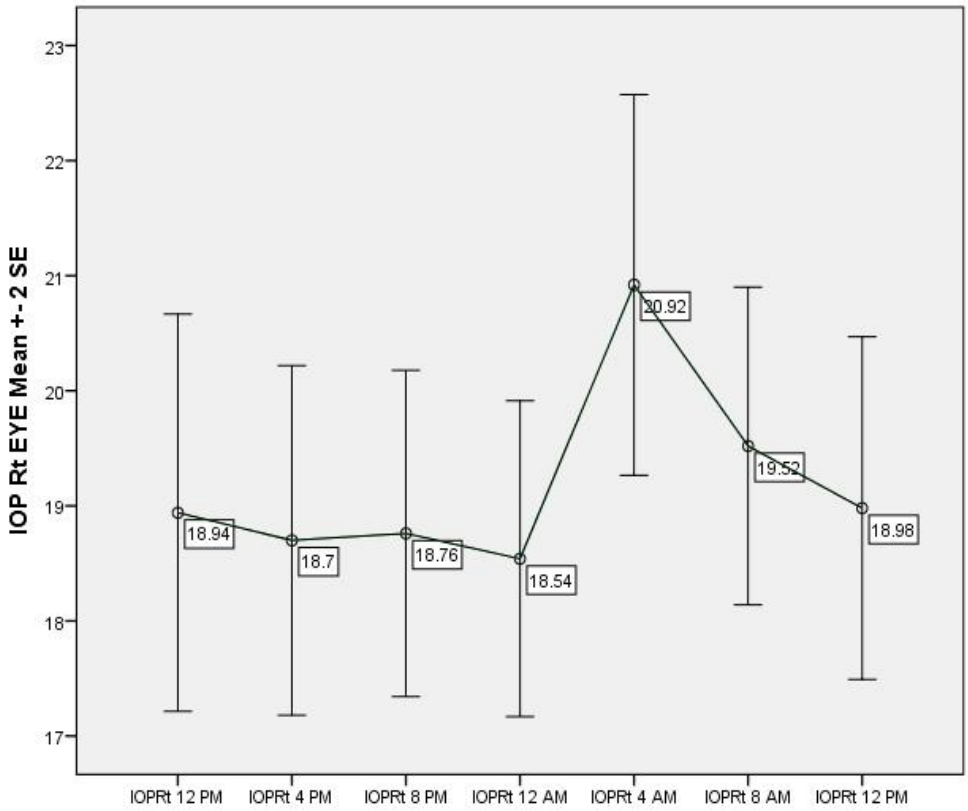
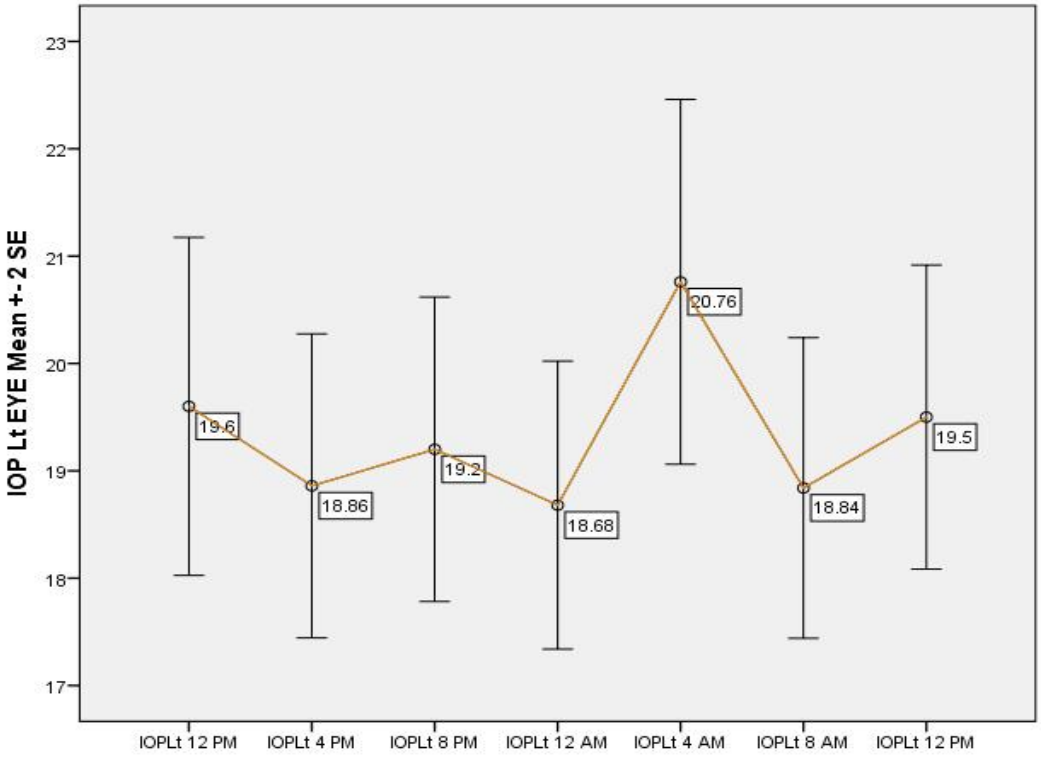


Fig 1b:Trends of Intra-Ocular Pressure Lt Eye



The peak of intra ocular pressure arises in 4 am and during other times it is almost equal in both eyes as shown in figure 1a and 1b in overall participants.

Table 2a: Mean values of IOP values of Right eye across the groups.

GROUP		12 PM	4 PM	8 PM	12 AM	4AM	8 AM
POAG	Mean	30.32	28.56	28.00	27.68	**32.48**	29.28
	Std. Error of Mean	1.050	.963	.902	.921	**.933**	.782
NTG	Mean	15.07	15.20	15.33	15.07	**18.40**	15.73
	Std. Error of Mean	.613	.611	.465	.431	**.445**	.547
OHT	Mean	28.20	26.80	26.20	24.80	**27.80**	25.20
	Std. Error of Mean	.629	.998	.814	1.162	**1.245**	.854
Controls	Mean	12.56	13.20	13.68	13.76	**14.52**	14.64
	Std. Error of Mean	.313	.291	.304	.278	**.212**	.209

The same trend is seen across the various groups of participants though the mean values of peak were different for each group as depicted in table 2a and 2b.

Table 2b: Mean values of IOP values of left eye across the groups.

GROUP		12 PM	4 PM	8 PM	12 AM	4AM	8 AM
POAG	Mean	30.48	28.72	28.96	*27.92*	**32.08**	29.60
	Std. Error of Mean	.843	.701	.834	*.787*	**1.309**	.825
NTG	Mean	16.00	15.47	15.60	*14.93*	**17.87**	15.47
	Std. Error of Mean	.617	.689	.524	*.547*	**.456**	.413
OHT	Mean	26.60	25.40	25.60	*24.40*	**27.80**	25.20
	Std. Error of Mean	1.035	.846	.933	*1.024*	**1.281**	.800
Controls	Mean	13.84	*13.64*	14.12	14.04	**14.56**	14.52
	Std. Error of Mean	.307	*.211*	.245	.265	**.274**	.205

Fig 2a: Trends of Intra-Ocular Pressure Rt Eye across groups

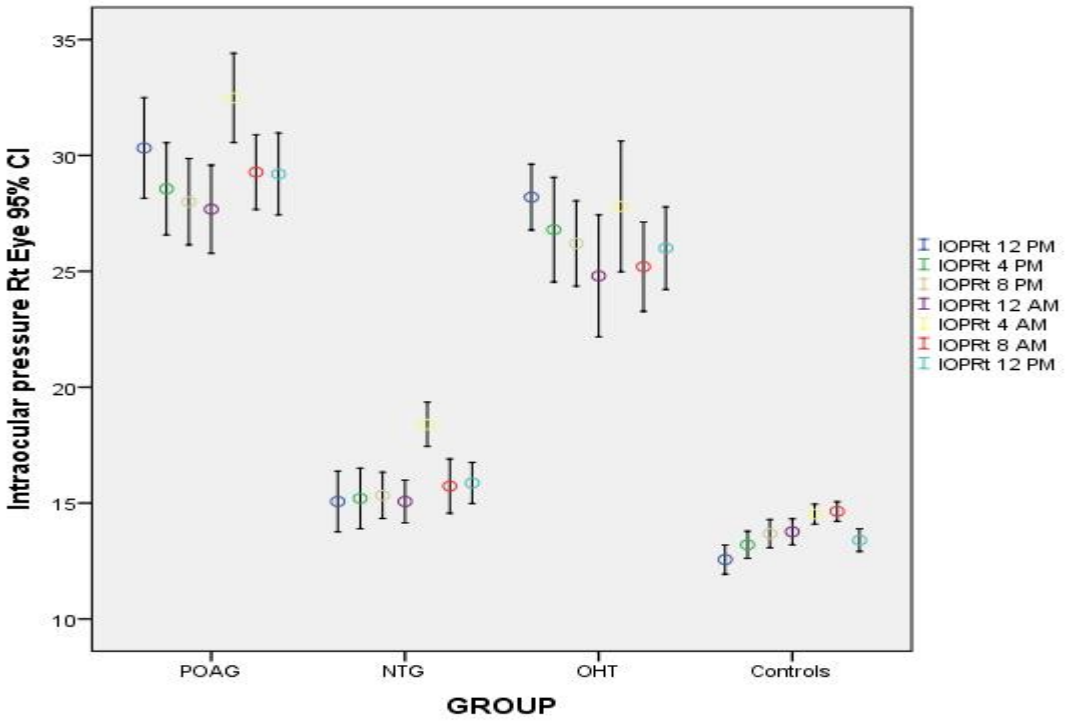
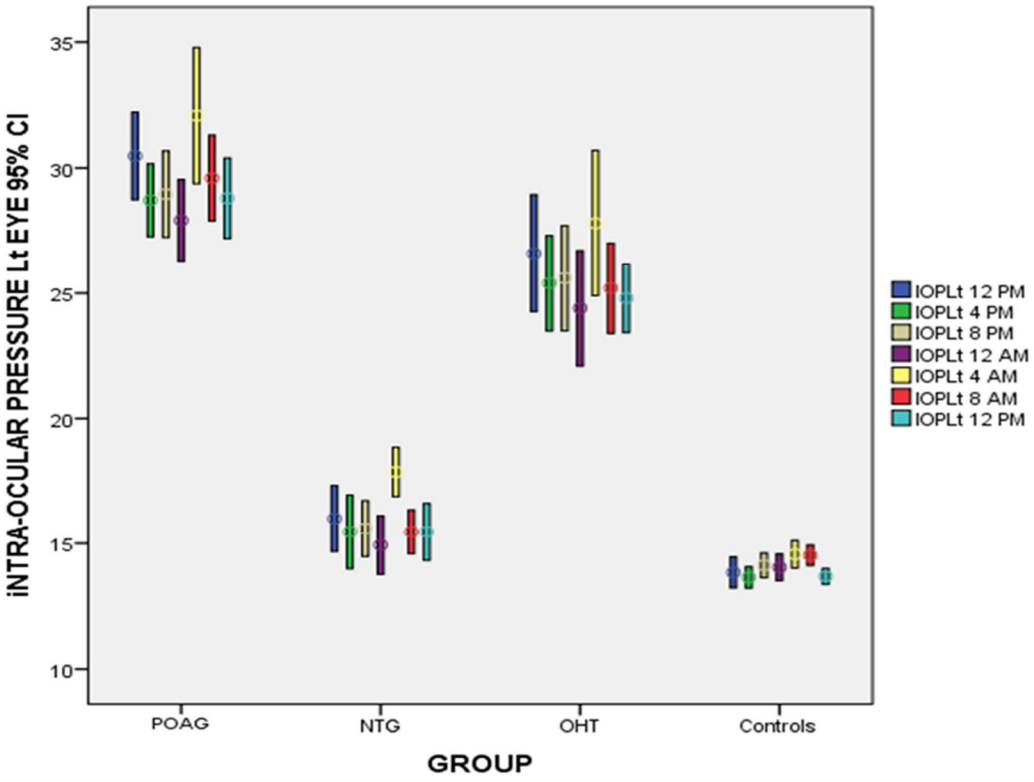


Fig 2b: Trends of Intra-Ocular Pressure Lt Eye across groups



B)Mean arterial Pressure

Fig 3: Circadian rhythm of Mean arterial pressure

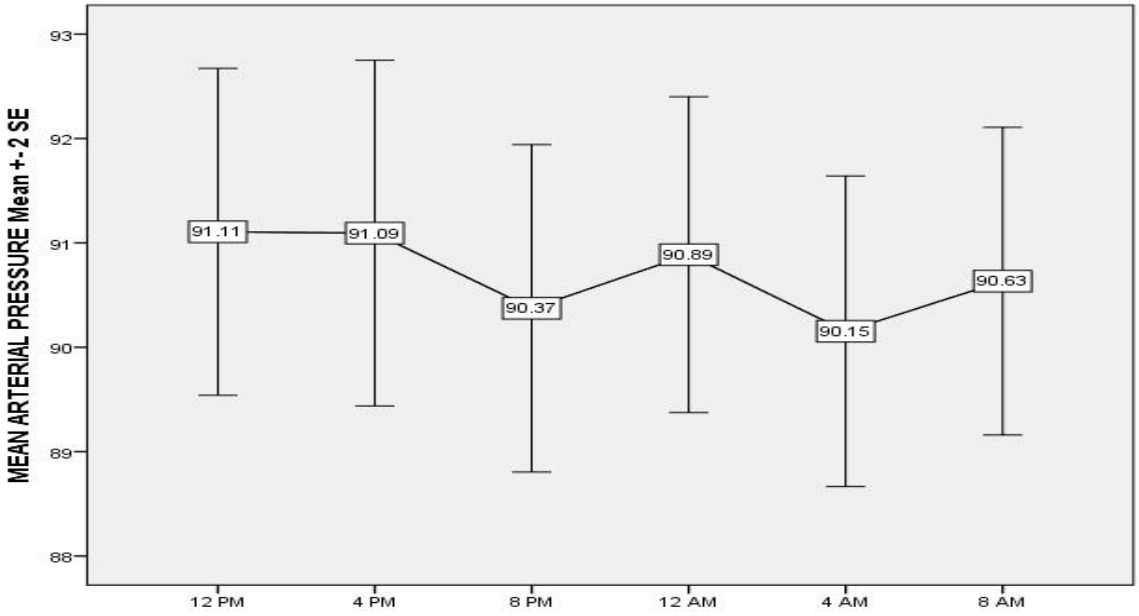


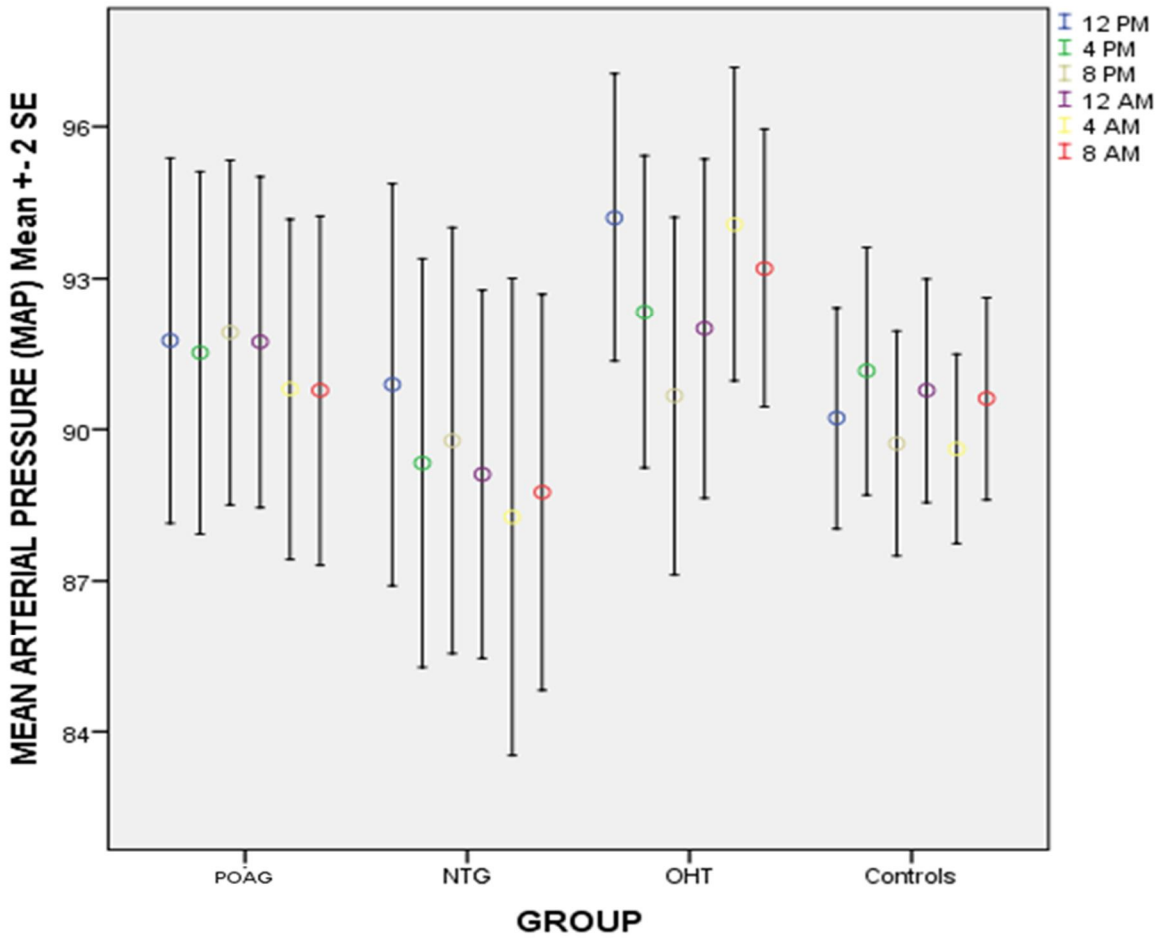
Table 3:Trends of Mean Arterial Pressure across groups

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	91.76	91.52	91.92	91.73	90.80	90.77
	Std. Error of Mean	1.81	1.80	1.71	1.64	1.69	1.73
NTG	Mean	90.89	89.33	89.78	89.11	88.27	88.76
	Std. Error of Mean	1.99	2.03	2.12	1.83	2.37	1.97
OHT	Mean	94.20	92.33	90.67	92.00	94.07	93.20
	Std. Error of Mean	1.42	1.55	1.77	1.68	1.55	1.38
Control	Mean	90.23	91.16	89.72	90.77	89.61	90.61
	Std. Error of Mean	1.10	1.23	1.11	1.11	.94	1.00
	Anova p value	0.504	0.813	0.707	0.719	0.244	0.539

The difference in mean values of mean arterial pressure based on blood pressure measurements across the groups over 24 hour pattern was found to not statistically significant which makes the participants comparable in baselines values using analysis of variance test.

The values of blood pressure are higher in the participants in the Ocular Hypertensive patients in comparison to other groups as depicted in figure 3.

Fig 3: Circadian pattern of MAP across the groups



C)Mean ocular perfusion pressure:

This is calculated from the Intraocular Pressure and Mean Arterial Perfusion pressure. The least is seen at 4 AM which is exactly the reverse to the Intra Ocular Pressure.

This pattern was seen in the different groups as shown in the table 4.

Table 4a: Mean values of MOPP across groups in Rt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	40.96	41.97	42.61	42.70	38.88	41.00
	Std. Error of Mean	1.48	1.49	1.33	1.32	1.29	1.22
NTG	Mean	50.55	49.42	49.63	49.36	46.58	48.68
	Std. Error of Mean	1.41	1.32	1.34	1.42	1.56	1.35
OHT	Mean	44.00	43.69	42.98	44.80	44.18	45.33
	Std. Error of Mean	1.07	1.34	1.00	1.44	1.56	1.20
Controls	Mean	51.78	51.97	50.69	51.34	50.06	50.65
	Std. Error of Mean	.73	.81	.76	.75	.66	.70
	Anova p value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

The difference between mean values of MOPP in right eye between groups by analysis of variance is significant at $p<0.001$. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the MOPP values in right eye was lesser than the NTG group and among controls with p value <0.001 in both cases.

For the NTG group the MOPP values in right eye was greater than POAG values (p<0.001) and OHT values (p<0.05).

For OHT group the MOPP values in right eye was less than NTG values (p< 0.05) and controls (p=0.001)

These differences stayed across the circadian pattern.

Table 4a: Mean values of MOPP across groups in Lt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	40.85	41.87	41.97	42.54	39.15	40.78
	Std. Error of Mean	1.25	1.30	1.21	1.13	1.32	1.14
NTG	Mean	49.93	49.24	49.45	49.45	46.93	48.86
	Std. Error of Mean	1.36	1.28	1.46	1.30	1.58	1.35
OHT	Mean	45.07	44.62	43.38	45.07	44.18	45.33
	Std. Error of Mean	1.08	.80	1.02	1.49	1.50	.90
Controls	Mean	50.92	51.68	50.40	51.16	50.04	50.73
	Std. Error of Mean	.71	.81	.68	.66	.60	.64
	Anova p value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

The difference between mean values of MOPP in left eye between groups by analysis of variance is significant at $p<0.001$. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the MOPP values in left eye was less than the NTG group and among controls with p value <0.001 in both cases.

For the NTG group the MOPP values in left eye was greater than POAG values ($p<0.001$).

For OHT group the MOPP values in left eye was less than controls ($p<0.05$)

These differences stayed across the circadian pattern.

The difference in both eyes were similar in nature with the normal tention glaucoma patients having higer mean ocular perfusion pressure in comparision to the other groups.

These differences are depicted in the figures 4a and 4b respectively

Figure 4a: Circadian pattern of MOPP in Rt eye across groups

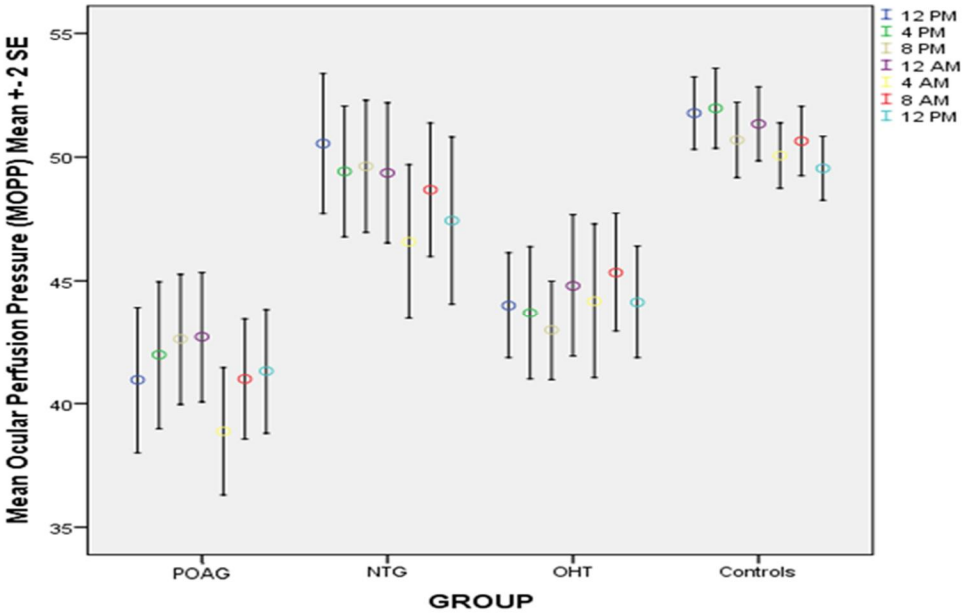
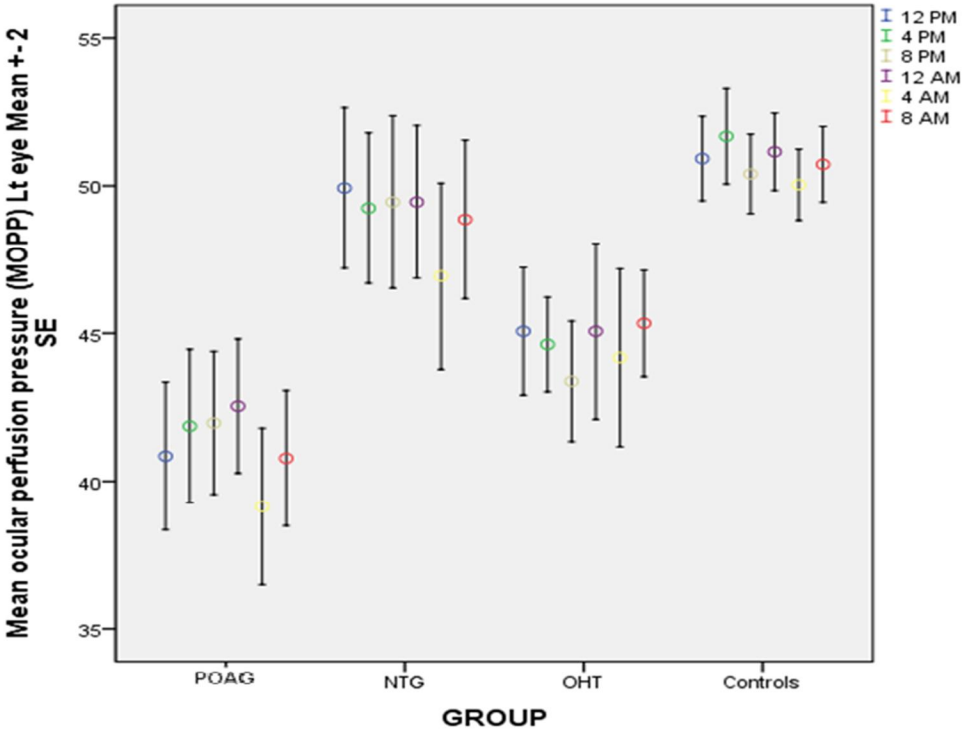


Figure 4b: Circadian pattern of MOPP in Lt eye across groups



D)Systolic Ocular Perfusion Pressure(SOPP):

Table 5a: Mean values of SOPP across groups in Rt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	91.04	92.24	92.72	92.80	86.80	90.56
	Std. Error of Mean	3.321	3.287	2.948	2.850	2.605	2.542
NTG	Mean	102.67	101.87	101.73	101.60	96.00	99.60
	Std. Error of Mean	3.163	3.089	2.933	3.019	3.195	2.576
OHT	Mean	92.80	89.80	90.60	93.20	94.00	96.40
	Std. Error of Mean	3.144	3.326	1.551	3.349	3.590	3.317
Controls	Mean	105.32	105.48	103.08	102.24	100.48	101.12
	Std. Error of Mean	1.569	1.598	1.356	1.245	1.249	1.162
	Anova p value	<0.001	<0.001	<0.001	0.002	<0.001	<0.001

The difference between mean values of SOPP in right eye between groups by analysis of variance is significant at $p<0.001$. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the SOPP values in right eye was less than the NTG group and among controls with p value< 0.05 and <0.001 respectively.

For the NTG group the SOPP values in right eye was greater than POAG values ($p<0.05$).

For OHT group the SOPP values was in right eye lesser than controls ($p<0.05$)

These differences stayed across the circadian pattern.

Table 5b: Mean values of SOPP across groups in Lt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	90.88	92.08	91.76	92.56	87.20	90.24
	Std. Error of Mean	2.859	2.839	2.575	2.445	2.530	2.310
NTG	Mean	101.73	101.60	101.47	101.73	96.80	99.87
	Std. Error of Mean	3.042	3.038	3.204	2.821	3.146	2.622
OHT	Mean	94.40	93.60	91.20	93.60	94.00	96.40
	Std. Error of Mean	2.491	2.325	1.665	3.124	3.197	2.794
Controls	Mean	104.04	105.04	102.64	101.96	100.44	101.24
	Std. Error of Mean	1.563	1.613	1.253	1.125	1.177	1.133
	Anova p value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

The difference between mean values of SOPP in left eye between groups by analysis of variance is significant at $p<0.001$. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the SOPP values in left eye was lesser than the NTG group and among controls with p value< 0.05 and <0.001 respectively.

For the NTG group the SOPP values in left eye was greater than POAG values ($p<0.05$).

These differences stayed across the circadian pattern.

These changes are depicted in figures 5a and 5b.

Fig 5a: Systolic Ocular Perfusion Pressure across groups in Rt eye

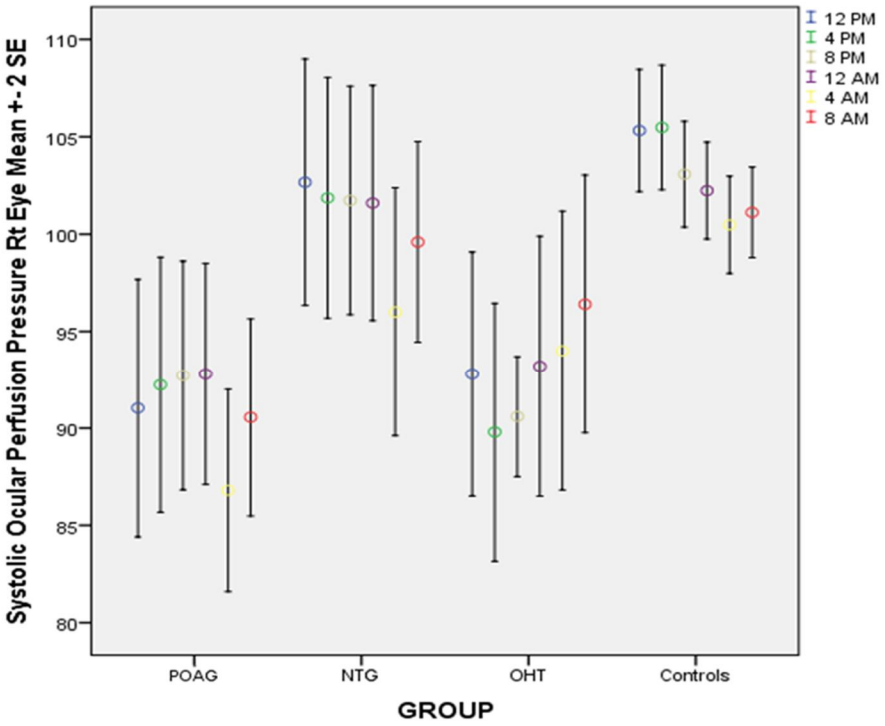
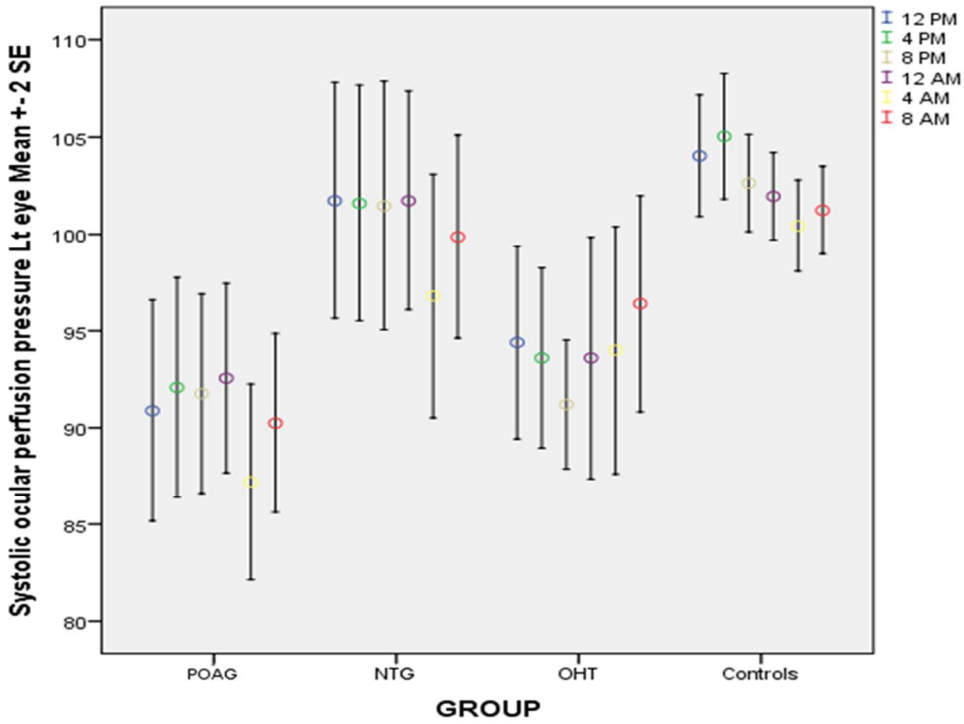


Fig 5b: Systolic Ocular Perfusion Pressure across groups in Lt eye



E)Diastolic ocular perfusion pressure (DOPP):

Table 6a: Mean values of DOPP across groups in Rt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	46.64	48.32	49.52	49.68	44.08	46.96
	Std. Error of Mean	1.924	1.979	1.764	1.700	1.817	1.690
NTG	Mean	62.40	60.27	60.80	60.27	56.67	59.73
	Std. Error of Mean	1.726	1.666	1.688	1.950	2.144	1.931
OHT	Mean	52.60	52.20	51.40	54.20	52.40	53.80
	Std. Error of Mean	1.157	1.533	1.634	2.010	1.904	1.209
Controls	Mean	64.24	64.20	62.52	64.40	62.40	63.40
	Std. Error of Mean	1.020	1.160	1.157	1.126	.995	1.150
	Anova p value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

The difference between mean values of MOPP in right eye between groups by analysis of variance is significant at p<0.001. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the DOPP values in right eye was less than the NTG group and among controls with p value <0.001 in both cases.

For the NTG group the DOPP values in right eye was greater than POAG values ($p<0.001$) and OHT values ($p<0.05$).

For OHT group the DOPP values was in right eye lesser than NTG values ($p< 0.05$) and controls ($p=0.001$)

These differences stayed across the circadian pattern.

Table 6b: Mean values of DOPP across groups in Lt Eye

GROUP		12 PM	4 PM	8 PM	12 AM	4 AM	8 AM
POAG	Mean	46.48	48.16	48.56	49.44	44.48	46.64
	Std. Error of Mean	1.737	1.851	1.772	1.560	1.957	1.684
NTG	Mean	61.47	60.00	60.53	60.40	57.20	60.00
	Std. Error of Mean	1.696	1.598	1.794	1.812	2.215	1.892
OHT	Mean	54.20	53.60	52.00	54.60	52.40	53.80
	Std. Error of Mean	1.800	1.222	1.606	2.291	2.083	.964
Controls	Mean	62.96	63.76	62.08	64.12	62.36	63.52
	Std. Error of Mean	.992	1.151	1.029	.987	.910	1.041
	Anova p value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

The difference between mean values of DOPP in left eye between groups by analysis of variance is significant at $p<0.001$. By Post-Hoc analysis the following findings were observed:

In comparison to POAG group the DOPP values in left eye was lesser than the NTG group, OHT group and among controls with p value were <0.001, <0.05 & <0.001 respectively.

For the NTG group the DOPP values in left eye was greater than POAG values ($p<0.001$).

For OHT group the DOPP values was in left eye lesser controls ($p<0.01$) and higher than POAG values ($p <0.05$).

These differences stayed across the circadian pattern.

These changes are depicted in figures 6a and 6b.

Fig 6a: Diastolic Ocular Perfusion Pressure across groups in Rt eye

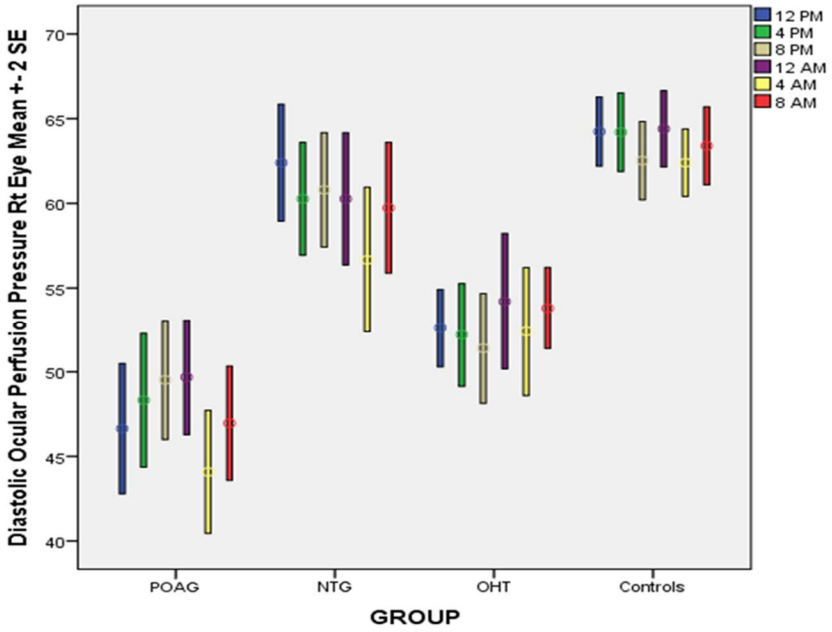
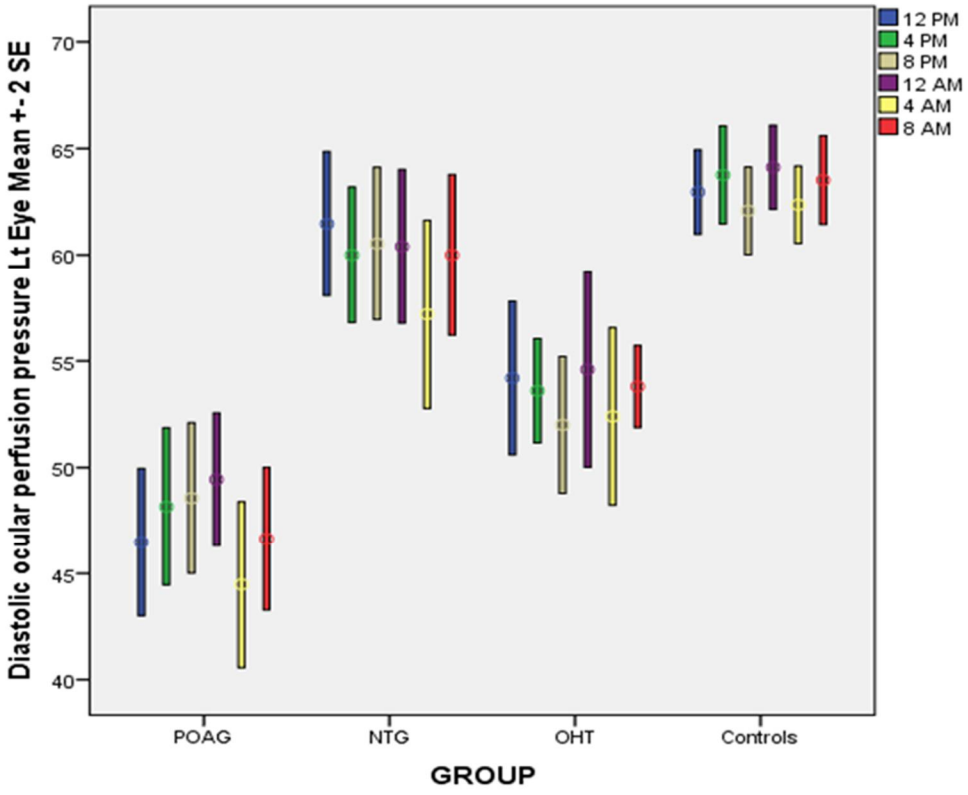


Fig 6b: Diastolic Ocular Perfusion Pressure across groups in Lt eye.



II) Changes over follow-up

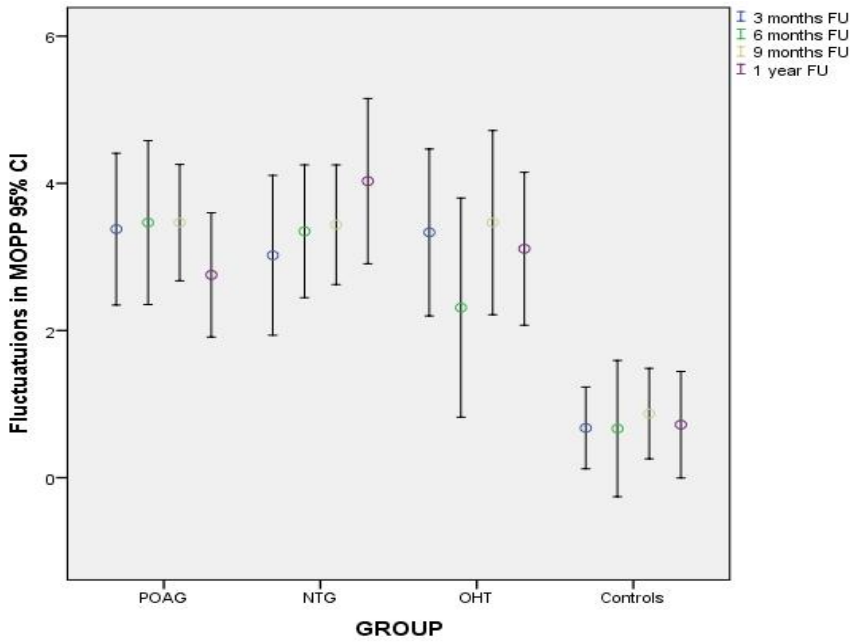
A) MOPP Changes over follow up

Table 7: Mean values of MOPP over follow-Up across groups

		Mean	Std. Deviation	Std. Error Mean
Baseline	Controls	0.7556	1.97183	.27886
	Cases	2.6311	3.80724	.53842
3 months	Controls	0.6756	1.95539	0.27653
	Cases	3.2622	2.15426	.30466
6 months	Controls	0.6667	3.25764	.46070
	Cases	3.2000	2.30678	.32623
9 months	Controls	0.8711	2.16611	.30633
	Cases	3.4578	1.72551	.24402
1 year	Controls	0.7200	2.54901	.36049
	Cases	3.2089	1.98008	.28003

The fluctuation between the mean ocular perfusion pressure was higher in the cases than controls.These changes were statistically significant at $p<0.05$ level.

Fig7: Changes in fluctuation of MOPP values across the group in Follow-up



B)LV values over Follow-up

		Baseline		6 months FU		1 year FU	
GROUP		RT eye	Lt eye	RT eye	Lt eye	RT eye	Lt eye
POAG	Mean	20.904	21.660	22.564	23.280	31.052	24.612
	Std. Error of Mean	1.2949	1.0753	1.2639	1.0605	8.0914	1.0427
NTG	Mean	10.080	10.193	11.067	11.140	12.100	12.213
	Std. Error of Mean	.3288	.4269	.3195	.4126	.3627	.4408
OHT	Mean	11.870	11.630	14.160	13.990	15.620	15.960
	Std. Error of Mean	1.4606	1.1762	1.5478	1.7775	1.4934	1.9572
Controls	Mean	2.908	2.786	2.838	3.618	2.980	3.100
	Std. Error of Mean	.1099	.1190	.2408	.3652	.2860	.3304

There was visual field progression over 1 year follow up in cases while it remained almost same in controls. At 1year the following findings were seen POAG group had worsening than controls ($p<0.001$).

NTG and OHT had worsening in comparison to controls ($p<0.05$ and <0.001 respectively).

C)MD over follow-up across cases

		Baseline		6 months FU		1 year FU	
GROUP		RT eye	Lt eye	RT eye	Lt eye	RT eye	Lt eye
POAG	Mean	15.296	15.784	17.104	17.140	18.368	18.452
	Std. Error of Mean	.8419	.8653	.9424	.9816	.9271	.9548
NTG	Mean	6.620	7.187	7.507	7.920	8.593	8.940
	Std. Error of Mean	.4777	.4745	.4423	.4930	.4601	.5013
OHT	Mean	9.090	8.820	10.480	10.760	11.530	12.090
	Std. Error of Mean	.9039	1.0174	.9521	1.2792	.9264	1.3365
Controls	Mean	.832	.844	1.464	1.416	1.694	1.524
	Std. Error of Mean	.0589	.0787	.3529	.3208	.3849	.3622

There was progression of mean defect over 1 year follow up in cases while it remained almost same in controls. At 1year the following findings were seen

POAG group had worsening than NTG, OHT and controls ($p<0.001$).

NTG and OHT had worsening in comparison to controls ($p<0.001$).

The MOPP fluctuation had a significant role in MD values with a correlation coefficient of 0.256 ($p=0.010$, significance at $p<0.05$ level)

III) The effect of fluctuation in MOPP levels in cases with POAG, NTG and controls.

The lower the fluctuation the better was the visual field progression which is shown by the correlation plots of the values in groups.

The predicted value for visual progression (y) based on fluctuation of MOPP levels (x) in POAG was $y=22.72 + 3.02x$. This shows that as the fluctuations in MOPP increases the visual field progression also increases. This correlation was found to be statistically significant with correlation coefficient value of 0.238 ($p=0.017$, significance at $p<0.05$ level).

Figure 8a: Scatter plot between visual field progression and MOPP fluctuations in POAG group

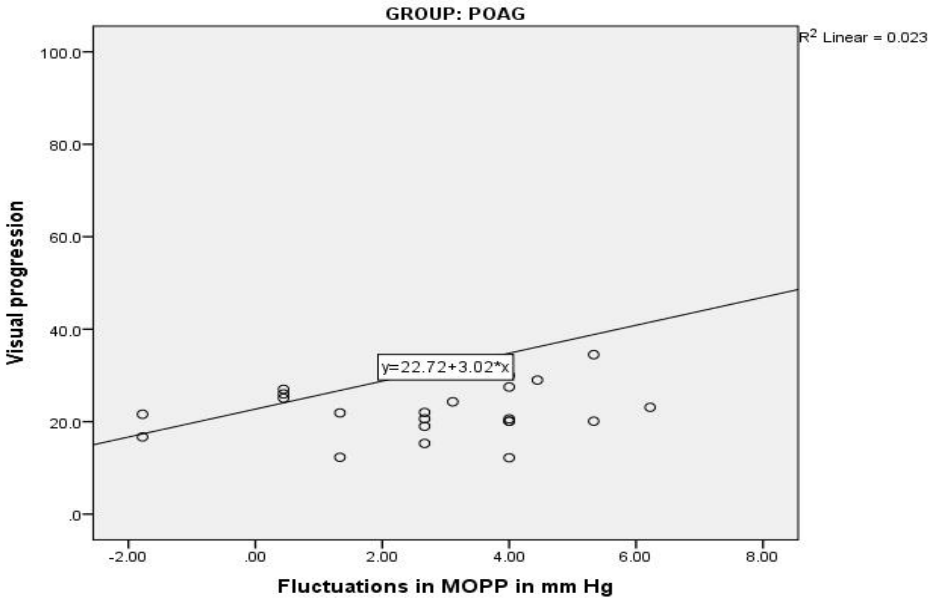
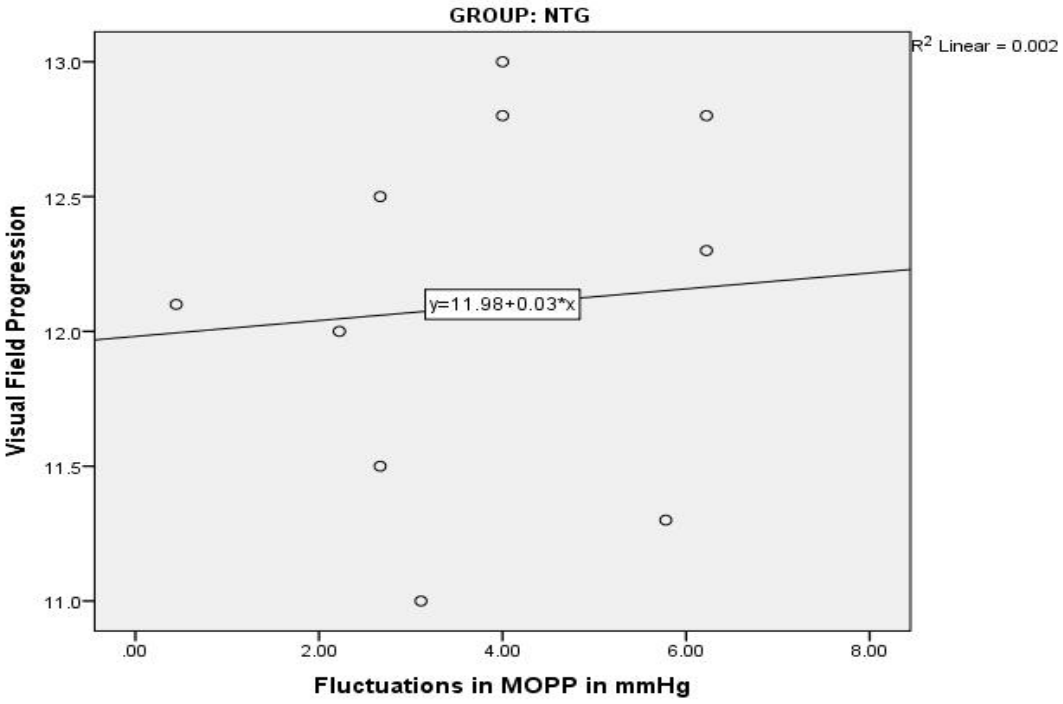
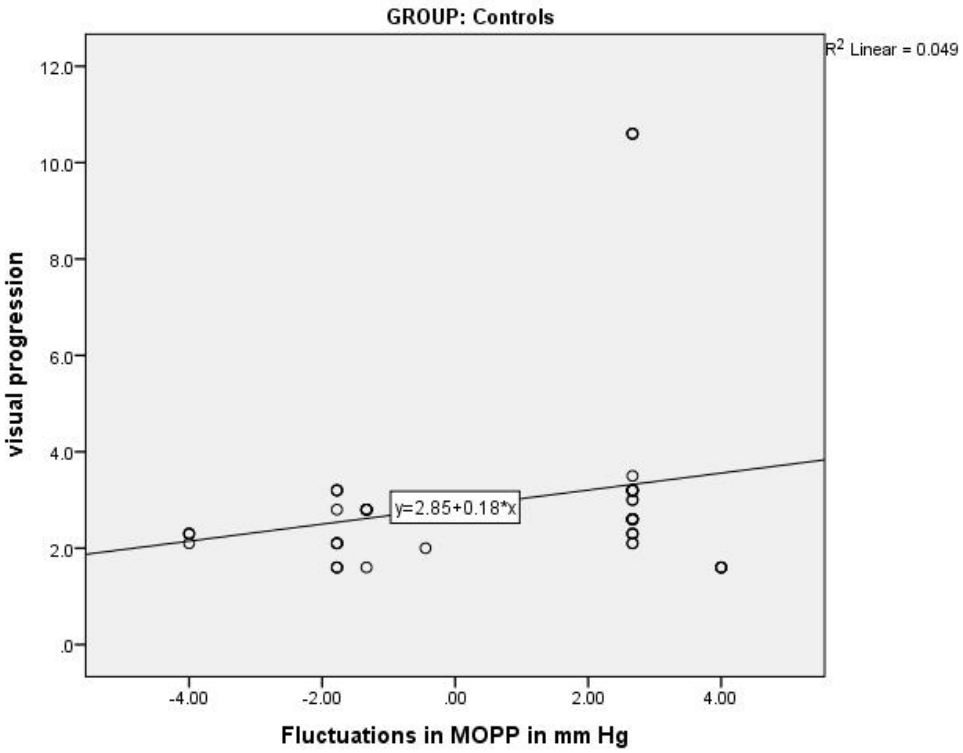


Figure 8b: Scatter plot between visual field progression and MOPP fluctuations in NTG group.



The predicted value for visual progression (y) based on fluctuation of MOPP levels (x) in NTG was y= 11.98 + 0.03x. This shows that visual progression increases with the fluctuations in MOPP but lesser than POAG group. This correlation was found to be statistically significant with correlation coefficient value of 0.260 (p=0.028, significance at p<0.05 level).Fig 8b

Figure 8c: Scatter plot between visual field progression and MOPP fluctuations in control group.



The predicted value for visual progression (y) based on fluctuation of MOPP levels (x) in controls was y= 2.85 + 0.18x respectively(Fig 8c). This change is much lower than the increase in visual progression shown by POAG. This correlation was found to be statistically significant with correlation coefficient value of – 0.222 (p=0.012, significance at p<0.05 level).

DISCUSSION

Glaucoma is one of the leading cause of blindness all over the world. Increased intraocular pressure is the primary risk factor for the onset and progression of glaucoma. IOP is the only modifiable risk factor for glaucoma and lowering of intra ocular pressure is the only method that slows down the progression of glaucoma. IOP fluctuates over the course of the day similar to other biological parameters.

Higher MAP and MOPP fluctuations over 24 hours is an important risk factor for progression of glaucoma in normotensive glaucoma patients. In other words, increased twenty four hour circadian mean ocular perfusion pressure fluctuation was associated with progression of glaucoma as said by Kyung Rim et al.

The percentage decrease in circadian mean ocular perfusion pressure fluctuation was significantly larger in untreated POAG patients compared to control groups which suggest that CMF is an important and independent risk factor for progression of glaucoma and it was also associated with progression of visual field indices as said by Jaewan Choi et al.

In our study, decreased SOPP, DOPP and MOPP was more in POAG group compared to other groups and they are the risk factors for glaucoma. As IOP, SBP and DBP are taken into account for calculation of MOPP, it serve as better surrogate parameter of ocular perfusion status.

Multiple mechanisms are there for development of glaucomatous optic neuropathy, it may be a decreased perfusion pressure or it may be due to anatomical weakeness such as weaker supporting tissue or astroglia. Optic nerve head ischemia lead to increased cup – disc ratio independent of IOP level as proposed by Oku et al.

The progression of glaucomatous visual field damage occurs independent of IOP which correlates with retrobulbar hemodynamics. Large diurnal fluctuation in ocular blood flow may be related to the pathogenesis of POAG and this fluctuation result in ischemia which is manifested in the progression of RNFL damage and visual field indices. Ischemia and reperfusion results in the release of free radicals and it may contribute to cell injury.

Similarly for normotensive glaucoma patients, glaucomatous damage occurs independent of IOP which emphasize the importance of retrobulbar hemodynamics. Large diurnal fluctuation in ocular blood flow results in ischemic injury to the cells and results in glaucoma progression.

Our study, had limitations such as Patients on antihypertensives or hemodynamically active medications are not excluded from the study. So it could bias intraocular pressure and CMF. These medications can influence both autoregulation of the vessels and the vascular resistance thereby modify the ocular blood flow.

Once we divided the groups, the sample size in each group was less which needs a further larger trial. Calculation of MOPP was formula derived parameter and it may not perfectly reflect the status of ocular perfusion. Direct measurement of ocular blood flow may result in different outcome. Imaging techniques are used to measure the OBF but it also has its own limitations such as technically difficult to do, operator dependent, lack of reproducible results and high cost.

Mean ocular perfusion pressure is easy to measure and it is a better parameter for OBF. Blood pressure, intra ocular pressure and mean ocular perfusion pressure measurement every fourth hourly may not be the best way to found out the association between these parameters and disease progression. Different result might have been obtained when we measured these parameters in a seamless physiological manner over twenty four hours. Nonetheless, we believe that CMF measurement is a useful practical tool to measure and it gives an idea for long term prognosis.

CONCLUSION

This study showed that IOP is at peak at 4am for all the groups. Mean arterial pressure was less in NTG group compared to POAG and OHT. Mean ocular perfusion pressure was seen decreased at 4am and it was less in POAG group followed by OHT and NTG group. SOPP and DOPP also shows a similar trend in which it was less in POAG group compared to other groups. Mean defect and loss variance showed progression over one year follow up which was more in POAG group compared to other groups. Lower the fluctuation of MOPP, lesser was the visual field progression which states that the circadian fluctuation of MOPP is a significant risk factor for the progression of glaucoma.

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(5347)

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI 600 003

EC Reg.No.ECR/270/Inst./TN/2013
Telephone No.044 25305301
Fax: 011 25363970

CERTIFICATE OF APPROVAL

To

Dr.K.Gayathri
I Year PG in MS Ophthalmology
Regional Institute of Ophthalmology & Govt. Ophthalmic Hospital/
Madras Medical College
Chennai 600 003

Dear Dr.K.Gayathri,

The Institutional Ethics Committee has considered your request and approved your study titled **"CIRCADIAN FLUCTUATION OF MEAN OCULAR PERFUSION PRESSURE AND ITS RELATIONSHIP WITH VARIOUS TYPES OF GLAUCOMA" - NO.26062017(A)**

The following members of Ethics Committee were present in the meeting hold on **20.06.2017** conducted at Madras Medical College, Chennai 3

1. Prof.Dr.C.Rajendran, MD.,	:Chairperson
2. Prof.R.Narayana Babu,MD.,DCH., MMC,Ch-3	: Deputy Chairperson
3. Prof.Sudha Seshayyan,MD., Vice Principal,MMC,Ch-3	:Member Secretary
4. Prof.S.Mayilvahanan,MD,Director,Inst. of Int.Med,MMC, Ch-3	: Member
5. Prof.A.Pandiya Raj,Director, Inst. of Gen.Surgery,MMC	: Member
6. Prof.Rema Chandramohan,Prof.of Paediatrics,ICH,Chennai	: Member
7. Prof. Susila, Director, Inst. of Pharmacology,MMC,Ch-3	: Member
8.Thiru S.Govindasamy, BA.,BL,High Court,Chennai	: Lawyer
9.Tmt.Arnold Saulina, MA.,MSW.,	:Social Scientist
10.Tmt.J.Rajalakshmi, JAO,MMC, Ch-3	: Lay Person

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary – Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE
CHENNAI-600 003

Urkund Analysis Result

Analysed Document: circadian fluctuation of ocular perfusion pressure and its role in various types of glaucoma.docx (D42809718)
Submitted: 10/20/2018 11:43:00 AM
Submitted By: kgayathri612@gmail.com
Significance: 3 %

Sources included in the report:

Thesis Plagarism Upload.docx (D31317510)
incidence of ocular trauma thesis final.docx (D42783742)
Adhi Final Edited WORD.doc (D42432664)
To study the correlation between the pressure-to-cornea index and both structural and functional index of glaucoma.docx (D30678166)
prevalence of glaucoma in OSAS patients final.docx (D31155397)
Suge Thesis.docx (D31300885)
http://saspublisher.com/wp-content/uploads/2017/09/SJAMS-58E3313-3317.pdf
https://en.wikipedia.org/wiki/Aqueous_humour
https://entokey.com/intraocular-pressure-and-aqueous-humor-dynamics/

Instances where selected sources appear:

15

ஆய்வு தகவல் படிவம்

ஆய்வின் தலைப்பு:

ஒரு மூன்றாம் நிலை மருத்துவமனையில் செய்யப்படும் இடைநிலை கண் உள்ளோட்ட அழுத்த நாள்சார் மாற்றங்கள் குறித்தும், அதனால் ஏற்படும் பல வகையான கண் அழுத்த நோயின் விளைவுகள் பற்றிய மருத்துவ ஆய்வு.

பங்கு பெறுபவரின் பெயர் :

ஆய்வாளர் பெயர் : **மரு. க. காயத்ரி**
அரசு கண் மருத்துவமனை,
சென்னை மருத்துவக் கல்லூரி,
எழும்பூர், சென்னை-600008.

நீங்கள் இந்த ஆய்வில் பங்கு பெற வரவேற்கப்படுகிறீர்கள். இந்த தாளில் அளிக்கப்பட்டுள்ள விரவங்கள் நீங்கள் ஆய்வில் பங்கு பெறுவது குறித்து தீர்மானிக்க உதவும் சந்தேகங்கள் மற்றும் கேள்விகள் தயக்கமின்றி வரவேற்க்கப்படுகின்றன.

ஆய்வின் நோக்கம் :

ஒரு மூன்றாம் நிலை மருத்துவமனையில் செய்யப்படும் இடைநிலை கண் உள்ளோட்ட அழுத்த நாள்சார் மாற்றங்கள் பற்றிய ஆய்வும் அதன் காரணமாக பல வகையான கண் அழுத்த நோயின் வளர்ச்சி அடைதல் குறித்து ஆய்வு செய்தல்.

நாங்கள் இந்த ஆய்விற்காக தலைமை நெறிமுறை குழுவின் (Institutional Ethics Committee) அனுமதி பெற்றுள்ளோம்.

ஆய்வின் திட்டம் : விளக்கமான ஆய்வு.

ஆய்வின் செயல் முறைகள்:

நோயாளியின் விவரங்களோடு கூடிய நோயின் தன்மை, பார்வை கூர்மை, கண் விழியின் முன் மற்றும் பின் அறை பரிசோதனை உள்ளிட்ட முழு கண் பரிசோதனை செய்யப்படும். இவற்றோடு பிறவு விளக்கு (Slit Lamp), கண் உள்நோக்கு (Ophthalmoscopy), காட்சி துறைகள் (Visual Fields), ஒரு நாளில் நான்கு மணி நேரத்திற்கு ஒரு முறை கண் அழுத்தம் (Intraocular Pressure), கண்விழியின்

கோணங்கள் பரிசோதனை (Gonioscopy), மத்திய கருவிழி தடிமன் (CCT), இரத்த அழுத்தம் போன்ற பரிசோதனைகளும் செய்யப்படும்.

உங்கள் தகவல் குறித்த நம்பிக்கை:

உங்களைப் பற்றிய தகவல் (பரிசோதனை விவரங்கள்) எவருக்கும் தெரிவிக்கப்படமாட்டாது. இந்த ஆய்விலிருந்து அறியப்படும் விவரங்கள் கூட்டங்களில், பத்திரிக்கைகளில் இடப்படும் போது உங்களைப் பற்றிய தனிப்பட்ட தகவல்கள் இரகசியம் காக்கப்படும்.

நீங்கள் இந்த ஆய்வில் பங்கு கொள்ளாவிட்டாலும் உங்களுடைய மருத்துவ சிகிச்சையோ அல்லது ஆய்வாளருடன், மருத்துவமனையுடன் உங்களது உறவு பாதிக்கப்படாது. இதனால் உங்களுக்கு கிடைக்கப்பெற இருக்கும் எந்த ஒரு சிகிச்சை முறையிலும் மாறுதல் ஏற்படாது. நீங்கள் இந்த ஆய்வில் பங்கு பெறுவது உங்களுடைய விருப்பம் எந்த நேரத்திலும், எந்த விளக்கமும் அளிக்காமல் விலகிக் கொள்ள உரிமை உண்டு.

ஆய்வாளரின் கையொப்பம்:

பங்கேற்பவரின் பெயர் :

பங்கேற்பவரின் கையொப்பம் :

நாள் :
இடம் :

ஆய்வு ஒப்புதல் படிவம்

ஆய்வின் தலைப்பு:

ஒரு மூன்றாம் நிலை மருத்துவமனையில் செய்யப்படும் இடைநிலை கண் உள்ளோட்ட அழுத்த நாள்சார் மாற்றங்கள் குறித்தும், அதனால் ஏற்படும் பல வகையான கண் அழுத்த நோயின் விளைவுகள் பற்றிய மருத்துவ ஆய்வு.

பங்கு பெறுபவரின் பெயர் :

ஆய்வாளர் பெயர் : **மரு. க. காயத்ரி**
அரசு கண் மருத்துவமனை,
சென்னை மருத்துவக் கல்லூரி,
எழும்பூர், சென்னை-600008.

..... ஆகிய நான் மேற்கண்ட விவரங்களை படித்து அறிந்து கொண்டேன். எனக்கு இருந்த சந்தேகங்களுக்கு விளக்கம் அளிக்கப்பட்டது. நான் ஆய்வில் கலந்து கொள்ள முழு மனதுடன் ஒப்புதல் அளிக்கிறேன்.

1. நான் மேற்கண்ட ஒப்புதல் படிவத்தை நன்கு படித்து அறிந்து கொண்டேன்.
2. எனக்கு விளக்கப்பட்ட ஒப்புதல் படிவம் என்னிடம் தரப்பட்டுள்ளது.
3. இந்த ஆய்வின் தன்மை பற்றி எனக்கு விளக்கப்பட்டது.
4. நான் எனது பொறுப்புகளை ஆய்வாளர் / மருத்துவர் மூலம் அறிந்து கொண்டேன்.
5. எனக்கு அளிக்கப்பட்டு வரும் சிகிச்சை அல்லது இதற்கு முன்பு நான் எடுத்துக் கொண்ட சிகிச்சை பற்றிய விவரங்களையும் ஆய்வாளரிடம் தெரிவித்துள்ளேன்.
6. இந்த ஆய்வில் பங்கேற்பதால் வரும் பின் விளைவுகள் (ஏதேனும் இருந்தால்) பற்றி எனக்கு தெரிவிக்கப்பட்டது.
7. நான் எனது முழு ஒத்துழைப்பை இந்த ஆய்விற்கு வழங்குவேன் என்றும், எதிர்பாராத பக்கவிளைவு ஏற்பட்டால் அதனை உடனடியாக ஆய்வாளருக்கு தெரிவிப்பேன் என்றும் உறுதி அளிக்கிறேன்.
8. இந்த ஆய்விலிருந்து எந்த நேரத்திலும் விலகிக்கொள்ளலாம் என்றும், அதனால் எனக்கு அளிக்கப்படும் சிகிச்சை எந்த வகையிலும் பாதிக்காது என்றும் அறிகிறேன்.
9. என்னை இந்த ஆய்விலிருந்து எந்த நேரத்திலும் எந்த காரணத்திற்காகவும் என் ஒப்புதல் இல்லாமலும் விலக்கும் உரிமை ஆய்வாளருக்கு உண்டு என்பதை அறிந்து கொண்டேன்.

10. எனக்கு இந்த ஆய்வில் கலந்து கொள்வதால் கிடைக்கும் விவரங்களை அரசு நிறுவனங்கள், ஆய்வு உதவியாளர்கள், ஆய்வு அனுமதி குழு ஆகியோரிடம் பகிர்ந்து கொள்ள ஆய்வாளருக்கு அனுமதி வழங்குகிறேன். அவர்கள் என்னுடைய மருத்துவ ஆவணங்களை ஆய்வு செய்யலாம் என்பதை அறிந்து கொண்டேன்.

11. இந்த ஆய்வில் பங்கு பெறுபவரின் தனிப்பட்ட விவரங்கள் இரகசியமாக பாதுகாக்கப்படும் என்பதை அறிந்து கொண்டேன்.

12. எனது சந்தேகங்களுக்கு திருப்திகரமாக விடையளிக்கப்பட்டன.

13. நான் இந்த ஆய்வில் பங்கு பெற முழு மனதுடன் சம்மதிக்கிறேன்.

14. இந்த ஆய்வின் போது ஏற்படும் சந்தேகங்களுக்கு ஆய்வாளரை தொடர்பு கொள்ள வேண்டும் என்பதை அறிந்து கொண்டேன். இந்த ஒப்புதல் படிவத்தில் கையெழுத்து இடுவதின் மூலமாக இந்த கடிதத்தில் உள்ள தகவல்கள் தெளிவாக விளக்கப்பட்டன எனவும் அதனை நான் புரிந்து கொண்டேன் என்பதையும் தெரிவிக்கின்றேன்.

15. எனக்கு இந்த ஒப்புதல் படிவத்தின் நகல் வழங்கப்பட்டது.

பங்கேற்பவரின் கையொப்பம்..... இடம் ..... தேதி .....
கட்டைவிரல் ரேகை

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்.....

ஆய்வாளரின் கையொப்பம்..... இடம் ..... தேதி .....

ஆய்வாளரின் பெயர் .....

PROFORMA

- NAME :
- AGE:
- SEX:
- ADDRESS :
- IP.NO :
- DATE :
- PAST HISTORY:
- OCULAR EXAMINATION:

RIGHT EYE		LEFT EYE
	VISION	
	TENSION BY GAT	
	LID	
	CONJUNCTIVA	
	CORNEA	
	ANTERIOR CHAMBER	
	IRIS	
	PUPIL	
	LENS	
	FUNDUS	

- GONIOSCOPY :

  RE LE

- SBP:
- DBP:
- MAP :
- SOPP :
- DOPP :
- MOPP :
- FIELDS :
  a. MD -
  b. LV –
- DIAGNOSIS :

KEY TO MASTER CHART

R – RIGHT EYE

L – LEFT EYE

SBP – SYSTOLIC BLOOD PRESSURE

DBP – DIASTOLIC BLOOD PRESSURE

MAP – MEAN ARTERIAL PRESSURE

IOP – INTRA OCULAR PRESSURE

GROUP 1 – PRIMARY OPEN ANGLE GLAUCOMA

GROUP 2 – NORMOTENSIVE GLAUCOMA

GROUP 3 – OCULAR HYPERTENSION

GROUP 4 – CONTROLS

VAR00001 :

1- CASES

0-CONTROLS

D1 – FIRST VISIT

D2 – SECOND VISIT AT 3rd MONTH

D3 – THIRD VISIT AT 6th MONTH

D4 – FOURTH VISIT AT 9th MONTH

D5 – FIFTH VISIT AT 12th MONTH

V1 – MEASUREMENT AT 12 NOON

V2 – MEASUREMENT AT 4 PM

V3 – MEASUREMENT AT 8 PM

V4 – MEASUREMENT AT 12 AM

V5 – MEASUREMENT AT 4 AM

V6 – MEASUREMENT AT 8 AM

V7 – MEASUREMENT AT 12 NOON

SOPP – SYSTOLIC OCULAR PERFUSION PRESSURE

DOPP – DIASTOLIC OCULAR PERFUSION PRESSURE

MOPP – MEAN OCULAR PERFUSION PRESSURE

MD – MEAN DEFECT

LV – LOSS VARIANCE

SNO	AGE	SEX	GROUP	VAR00001	D1V1SBP	D1V1DBP	D1V1MAP	RD1V1IOP	RD1V1SOPP	RD1V1DOPP	RD1V1MOP	LD1V1IOP	LD1V1SOPP	LD1V1DOPP	LD1V1MOP	D1V2SBP	D1V2DBP	D1V2MAP	RD1V2IOP	RD1V2SOPP	RD1V2DOPP	RD1V2MOP	LD1V2IOP	LD1V2SOPP	LD1V2DOPP	LDIV2MOPP	D1V3SBP
1	61	1	1	1	110	70	83.33	28	82	42	36.89	32	78	38	34.22	110	70	83.33	32	78	38	34.22	28	82	42	36.89	110
2	56	2	2	1	110	80	90.00	18	92	62	48.00	16	94	64	49.33	110	80	90.00	18	92	62	48.00	16	94	64	49.33	100
3	67	2	1	1	130	90	103.33	36	94	54	44.89	32	98	58	47.56	140	90	106.67	32	108	58	49.78	28	112	62	52.44	140
4	46	2	3	1	120	80	93.33	26	94	54	44.89	22	98	58	47.56	110	70	83.33	26	84	44	38.22	22	88	48	40.89	110
5	65	1	2	1	120	80	93.33	14	106	66	52.89	14	106	66	52.89	130	70	90.00	18	112	52	48.00	14	116	56	50.67	130
6	60	1	1	1	140	80	100.00	26	114	54	49.33	36	104	44	42.67	140	80	100.00	24	116	56	50.67	36	104	44	42.67	130
7	67	1	1	1	110	76	87.33	34	76	42	35.56	30	80	46	38.22	110	80	90.00	34	76	46	37.33	28	82	52	41.33	110
8	51	1	2	1	130	80	96.67	12	118	68	56.44	14	116	66	55.11	126	80	95.33	12	114	68	55.56	14	112	66	54.22	130
9	40	2	3	1	120	80	93.33	28	92	52	43.56	28	92	52	43.56	120	80	93.33	24	96	56	46.22	28	92	52	43.56	110
10	38	1	3	1	120	80	93.33	28	92	52	43.56	28	92	52	43.56	120	80	93.33	22	98	58	47.56	24	96	56	46.22	110
11	62	1	1	1	110	76	87.33	28	82	48	39.56	34	76	42	35.56	110	76	87.33	28	82	48	39.56	34	76	42	35.56	116
12	39	2	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	130	90	103.33	16	114	74	58.22	16	114	74	58.22	120
13	32	1	3	1	100	80	86.67	32	68	48	36.44	22	78	58	43.11	100	80	86.67	34	66	46	35.11	22	78	58	43.11	112
14	40	1	4	0	100	80	80.00	12	88	68	45.33	12	88	68	45.33	110	70	83.33	14	96	56	46.22	14	96	56	46.22	100
15	49	1	2	1	120	80	93.33	14	106	66	52.89	18	102	62	50.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120
16	67	1	1	1	140	90	106.67	24	116	66	55.11	26	114	64	53.78	140	90	106.67	24	116	66	55.11	26	114	64	53.78	140
17	42	1	4	0	130	80	96.67	16	114	64	53.78	18	112	62	52.44	130	80	96.67	14	116	66	55.11	16	114	64	53.78	120
18	65	1	4	0	130	80	96.67	18	112	62	52.44	18	112	62	52.44	130	80	96.67	18	112	62	52.44	16	114	64	53.78	120
19	60	2	4	0	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	70	83.33	14	96	56	46.22	14	96	56	46.22	110
20	42	2	2	1	110	70	83.33	14	96	56	46.22	16	94	54	44.89	100	60	73.33	12	88	48	40.89	12	88	48	40.89	100
21	60	2	1	1	110	80	90.00	26	84	54	42.67	26	84	54	42.67	110	90	96.67	26	84	64	47.11	24	86	66	48.44	110
22	43	2	2	1	110	70	83.33	14	96	56	46.22	14	96	56	46.22	110	70	83.33	12	98	58	47.56	10	100	60	48.89	110
23	37	2	4	0	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100	60	73.33	14	86	46	39.56	12	88	48	40.89	100
24	46	2	4	0	120	80	93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	12	108	68	54.22	12	108	68	54.22	116
25	57	2	4	0	130	70	90.00	12	118	58	52.00	12	118	58	52.00	120	70	86.67	12	108	58	49.78	14	106	56	48.44	120
26	58	2	4	0	128	90	102.67	12	116	78	60.44	12	116	78	60.44	128	90	102.67	12	116	78	60.44	12	116	78	60.44	120
27	44	2	3	1	130	80	96.67	26	104	54	47.11	30	100	50	44.44	130	80	96.67	26	80	54	47.11	28	102	52	45.78	120
28	68	1	1	1	114	70	84.67	42	72	28	28.44	28	86	42	37.78	114	70	84.67	40	74	30	29.78	28	86	42	37.78	110
29	47	1	4	0	130	80	96.67	12	118	68	56.44	16	114	64	53.78	140	80	100.00	14	126	66	57.33	14	126	66	57.33	140
30	63	1	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	130	80	96.67	12	118	68	56.44	14	116	66	55.11	120
31	49	1	4	0	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	90	103.33	12	118	78	60.89	12	118	78	60.89	120
32	40	2	4	0	130	80	96.67	14	116	66	55.11	14	116	66	55.11	120	80	93.33	16	104	64	51.56	14	106	66	52.89	130
33	71	1	1	1	140	80	100.00	28	112	52	48.00	30	110	50	46.67	140	80	100.00	28	112	52	48.00	30	110	50	46.67	138
34	65	1	1	1	110	80	90.00	34	76	46	37.33	26	84	54	42.67	110	80	90.00	30	80	50	40.00	24	86	56	44.00	114
35	38	2	4	0	100	70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	10	90	60	46.67	12	88	58	45.33	114
36	43	2	3	1	120	74	89.33	26	94	48	42.22	26	94	48	42.22	120	74	89.33	26	94	48	42.22	24	96	50	43.56	116
37	66	2	1	1	136	80	98.67	26	110	54	48.44	30	106	50	45.78	130	76	94.00	22	108	54	48.00	30	100	46	42.67	130
38	70	2	1	1	110	86	94.00	30	80	56	42.67	34	76	52	40.00	110	80	90.00	28	82	52	41.33	28	82	52	41.33	110
39	56	2	1	1	126	70	88.67	28	98	42	40.44	40	86	30	32.44	120	70	86.67	26	94	44	40.44	36	84	34	33.78	120
40	61	1	1	1	140	82	101.33	38	102	44	42.22	30	110	52	47.56	136	80	98.67	36	100	44	41.78	30	106	50	45.78	140
41	52	1	1	1	100	60	73.33	26	74	34	31.56	32	68	28	27.56	100	60	73.33	26	74	34	31.56	30	70	30	28.89	108
42	48	2	2	1	110	70	83.33	12	98	58	47.56	18	92	52	43.56	110	70	83.33	14	96	56	46.22	18	92	52	43.56	110
43	51	1	2	1	130	80	96.67	14	116	66	55.11	20	110	60	51.11	130	80	96.67	14	116	66	55.11	20	110	60	51.11	126
44	57	1	2	1	110	70	83.33	20	90	50	42.22	16	94	54	44.89	110	76	87.33	18	92	58	46.22	16	94	60	47.56	110
45	44	1	2	1	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	70	80.00	14	86	56	44.00	16	84	54	42.67	100
46	37	2	2	1	100	74	82.67	18	82	56	43.11	16	84	58	44.44	100	70	80.00	18	82	52	41.33	16	84	54	42.67	110
47	49	2	1	1	110	80	90.00	26	84	54	42.67	24	86	56	44.00	110	80	90.00	26	84	54	42.67	26	84	54	42.67	110
48	54	2	1	1	126	70	88.67	32	94	38	37.78	30	96	40	39.11	120	70	86.67	30	90	40	37.78	30	90	40	37.78	120
49	63	1	1	1	136	84	101.33	24	112	60	51.56	38	98	46	42.22	130	80	96.67	22	108	58	49.78	34	96	46	41.78	130
50	43	2	3	1	130	80	96.67	28	102	52	45.78	28	102	52	45.78	120	80	93.33	28	92	52	43.56	24	96	56	46.22	120

SNO	AGE	SEX	GROUP	VAR00001	D1V1SBP	D1V1DBP	D1V1MAP	RD1V1IOP	RD1V1SOPP	RD1V1DOPP	RD1V1MOP	LD1V1IOP	LD1V1SOPP	LD1V1DOPP	LD1V1MOP	D1V2SBP	D1V2DBP	D1V2MAP	RD1V2IOP	RD1V2SOPP	RD1V2DOPP	RD1V2MOP	LD1V2IOP	LD1V2SOPP	LD1V2DOPP	LDIV2MOPP	D1V3SBP
51	50	2	3	1	130	90	103.33	30	100	60	48.89	24	106	66	52.89	130	86	100.67	28	102	58	48.44	26	104	60	49.78	130
52	56	1	3	1	120	84	96.00	28	92	56	45.33	26	94	58	46.67	120	80	93.33	28	92	52	43.56	26	94	54	44.89	120
53	42	2	3	1	120	80	93.33	30	90	50	42.22	32	88	48	40.89	120	80	93.33	26	94	54	44.89	30	90	50	42.22	120
54	56	1	1	1	140	80	100.00	26	114	54	49.33	30	110	50	46.67	140	80	100.00	24	116	56	50.67	28	112	52	48.00	136
55	60	1	1	1	100	70	80.00	34	66	36	30.67	28	72	42	34.67	100	70	80.00	30	70	40	33.33	26	74	44	36.00	100
56	61	2	1	1	116	80	92.00	40	76	40	34.67	32	84	48	40.00	120	80	93.33	32	88	48	40.89	28	92	52	43.56	116
57	48	1	2	1	130	84	99.33	18	112	66	54.22	18	112	66	54.22	130	80	96.67	16	114	64	53.78	18	112	62	52.44	130
58	45	1	2	1	136	90	105.33	16	120	74	59.56	14	122	76	60.89	130	86	100.67	18	112	68	55.11	16	114	70	56.44	130
59	41	1	2	1	120	84	96.00	14	106	70	54.67	20	100	64	50.67	120	80	93.33	16	104	64	51.56	18	102	62	50.22	120
60	65	1	1	1	140	80	100.00	28	112	52	48.00	26	114	54	49.33	140	80	100.00	24	116	56	50.67	22	118	58	52.00	140
61	58	2	1	1	130	80	96.67	30	100	50	44.44	36	94	44	40.44	130	80	96.67	26	104	54	47.11	30	100	50	44.44	130
62	46	1	2	1	130	80	96.67	14	116	66	55.11	12	118	68	56.44	130	80	96.67	14	116	66	55.11	12	118	68	56.44	130
63	68	2	1	1	100	60	73.33	26	74	34	31.56	28	72	32	30.22	100	60	73.33	26	74	34	31.56	28	72	32	30.22	100
64	57	1	1	1	110	70	83.33	38	72	32	30.22	24	86	46	39.56	110	70	83.33	38	72	32	30.22	26	84	44	38.22	110
65	40	1	4	0	110	80	90.00	10	100	70	53.33	12	98	68	52.00	110	80	90.00	12	98	68	52.00	12	98	68	52.00	110
66	46	1	4	0	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120
67	40	1	4	0	110	80	90.00	10	100	70	53.33	12	98	68	52.00	110	80	90.00	10	100	70	53.33	12	98	68	52.00	114
68	42	1	4	0	110	70	83.33	16	94	54	44.89	14	96	56	46.22	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110
69	58	1	4	0	100	70	80.00	10	90	60	46.67	16	84	54	42.67	100	70	80.00	10	90	60	46.67	14	86	56	44.00	100
70	54	2	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
71	58	2	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	130	90	103.33	16	114	74	58.22	16	114	74	58.22	120
72	57	1	4	0	100	80	80.00	12	88	68	45.33	12	88	68	45.33	110	70	83.33	14	96	56	46.22	14	96	56	46.22	100
73	57	1	4	0	130	80	96.67	16	114	64	53.78	18	112	62	52.44	130	80	96.67	14	116	66	55.11	16	114	64	53.78	120
74	57	2	4	0	130	80	96.67	18	112	62	52.44	18	112	62	52.44	130	80	96.67	18	112	62	52.44	16	114	64	53.78	120
75	65	2	4	0	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	70	83.33	14	96	56	46.22	14	96	56	46.22	110
76	65	1	4	0	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100	60	73.33	14	86	46	39.56	12	88	48	40.89	100
77	65	2	4	0	120	80	93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	12	108	68	54.22	12	108	68	54.22	116
78	65	1	4	0	130	70	90.00	12	118	58	52.00	12	118	58	52.00	120	70	86.67	12	108	58	49.78	14	106	56	48.44	120
79	65	1	4	0	128	90	102.67	12	116	78	60.44	12	116	78	60.44	128	90	102.67	12	116	78	60.44	12	116	78	60.44	120
80	54	2	4	0	130	80	96.67	12	118	68	56.44	16	114	64	53.78	140	80	100.00	14	126	66	57.33	14	126	66	57.33	140
81	54	2	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	130	80	96.67	12	118	68	56.44	14	116	66	55.11	120
82	63	1	4	0	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	90	103.33	12	118	78	60.89	12	118	78	60.89	120
83	52	1	4	0	130	80	96.67	14	116	66	55.11	14	116	66	55.11	120	80	93.33	16	104	64	51.56	14	106	66	52.89	130
84	51	1	4	0	100	70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	10	90	60	46.67	12	88	58	45.33	114
85	51	1	4	0	110	80	90.00	10	100	70	53.33	12	98	68	52.00	110	80	90.00	12	98	68	52.00	12	98	68	52.00	110
86	50	2	4	0	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120
87	49	2	4	0	110	80	90.00	10	100	70	53.33	12	98	68	52.00	110	80	90.00	10	100	70	53.33	12	98	68	52.00	114
88	49	1	4	0	110	70	83.33	16	94	54	44.89	14	96	56	46.22	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110
89	59	1	4	0	100	70	80.00	10	90	60	46.67	16	84	54	42.67	100	70	80.00	10	90	60	46.67	14	86	56	44.00	100
90	48	2	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
91	58	1	4	0	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	70	83.33	14	96	56	46.22	14	96	56	46.22	110
92	48	2	4	0	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100	60	73.33	14	86	46	39.56	12	88	48	40.89	100
93	47	1	4	0	120	80	93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	12	108	68	54.22	12	108	68	54.22	116
94	58	1	4	0	130	70	90.00	12	118	58	52.00	12	118	58	52.00	120	70	86.67	12	108	58	49.78	14	106	56	48.44	120
95	46	1	4	0	128	90	102.67	12	116	78	60.44	12	116	78	60.44	128	90	102.67	12	116	78	60.44	12	116	78	60.44	120
96	46	2	4	0	130	80	96.67	12	118	68	56.44	16	114	64	53.78	140	80	100.00	14	126	66	57.33	14	126	66	57.33	140
97	45	1	4	0	120	80	93.33	14	106	66	52.89	16	104	64	51.56	130	80	96.67	12	118	68	56.44	14	116	66	55.11	120
98	44	1	4	0	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	90	103.33	12	118	78	60.89	12	118	78	60.89	120
99	44	2	4	0	130	80	96.67	14	116	66	55.11	14	116	66	55.11	120	80	93.33	16	104	64	51.56	14	106	66	52.89	130
100	43	2	4	0	100	70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	10	90	60	46.67	12	88	58	45.33	114

D1V3DBP	D1V3MAP	RD1V3IOP	RD1V3SOPR	RD1V3DOPR	RD1V3MOP	LD1V3IOP	LD1V3SOPR	LD1V3DOPR	LD1V3MOP	D1V4SBP	D1V4DBP	D1V4MAP	RD1V4IOP	RD1V4SOPR	RD1V4DOPR	RD1V4MOP	LD1V4IOP	LD1V4SOPR	LD1V4DOPR	LD1V4MOP	D1V5SBP	D1V5DBP	D1V5MAP	RD1V5IOP	RD1V5SOPR	RD1V5DOPR
70	83.33	32	78	38	34.22	28	82	42	36.89	100	70	80.00	32	68	38	32.00	32	68	38	32.00	100	70	80.00	36	64	34
70	80.00	16	84	54	42.67	16	84	54	42.67	100	70	80.00	18	82	52	41.33	16	84	54	42.67	90	60	70.00	18	72	42
90	106.67	30	110	60	51.11	30	110	60	51.11	130	90	103.33	30	100	60	48.89	28	102	62	50.22	140	90	106.67	40	100	50
80	90.00	22	88	58	45.33	22	88	58	45.33	110	80	90.00	24	86	56	44.00	26	84	54	42.67	110	70	83.33	30	80	40
80	96.67	16	114	64	53.78	14	116	66	55.11	110	80	90.00	14	96	66	50.67	12	98	68	52.00	120	70	86.67	16	104	54
80	96.67	24	106	56	48.44	34	96	46	41.78	130	80	96.67	26	104	54	47.11	34	96	46	41.78	130	80	96.67	26	104	54
76	87.33	30	80	46	38.22	28	82	48	39.56	110	70	83.33	34	76	36	32.89	28	82	42	36.89	116	76	89.33	30	86	46
80	96.67	16	114	64	53.78	12	118	68	56.44	126	74	91.33	16	110	58	50.22	14	112	60	51.56	110	80	90.00	16	90	64
70	83.33	24	86	46	39.56	26	84	44	38.22	110	70	83.33	20	90	50	42.22	26	84	44	38.22	116	80	92.00	28	88	52
70	83.33	24	86	46	39.56	26	84	44	38.22	130	80	96.67	18	112	62	52.44	20	110	60	51.11	140	80	100.00	18	122	62
74	88.00	26	90	48	41.33	32	84	42	37.33	116	74	88.00	30	86	44	38.67	32	84	42	37.33	110	76	87.33	32	78	44
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	12	108	68	54.22	12	108	68	54.22	120	80	93.33	12	108	68
70	84.00	28	84	42	37.33	20	92	50	42.67	100	80	86.67	28	72	52	39.11	20	80	60	44.44	120	86	97.33	28	92	58
70	80.00	16	84	54	42.67	12	88	58	45.33	100	70	80.00	16	84	54	42.67	14	86	56	44.00	100	70	80.00	16	84	54
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	16	104	64	51.56	14	106	66	52.89	120	80	93.33	16	104	64
90	106.67	26	114	64	53.78	28	112	62	52.44	130	90	103.33	24	106	66	52.89	26	104	64	51.56	130	90	103.33	24	106	66
80	93.33	18	102	62	50.22	18	102	62	50.22	110	80	90.00	12	98	68	52.00	12	98	68	52.00	110	80	90.00	12	98	68
70	86.67	18	102	52	45.78	16	104	54	47.11	130	80	96.67	18	112	62	52.44	18	112	62	52.44	120	70	86.67	16	104	54
70	83.33	12	98	58	47.56	14	96	56	46.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	110	80	90.00	12	98	68
60	73.33	16	84	44	38.22	14	86	46	39.56	110	60	76.67	16	94	44	40.44	14	96	46	41.78	110	60	76.67	18	92	42
90	96.67	28	82	62	45.78	24	86	66	48.44	130	90	103.33	28	102	62	50.22	28	102	62	50.22	120	90	100.00	34	86	56
76	87.33	12	98	64	50.22	14	96	62	48.89	114	76	88.67	14	100	62	49.78	12	102	64	51.11	110	76	87.33	18	92	58
60	73.33	12	88	48	40.89	12	88	48	40.89	100	64	76.00	14	86	50	41.33	12	88	52	42.67	100	60	73.33	16	84	44
80	92.00	12	104	68	53.33	14	102	66	52.00	116	80	92.00	14	102	66	52.00	14	102	66	52.00	120	80	93.33	16	104	64
80	93.33	10	110	70	55.56	12	108	68	54.22	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	80	90.00	16	94	64
80	93.33	14	106	66	52.89	12	108	68	54.22	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	16	104	64
80	93.33	26	94	54	44.89	28	92	52	43.56	120	80	93.33	28	92	52	43.56	30	90	50	42.22	120	80	93.33	30	90	50
70	83.33	40	70	30	28.89	32	78	38	34.22	110	76	87.33	40	70	36	31.56	24	86	52	42.22	120	70	86.67	36	84	34
84	102.67	14	126	70	59.11	16	124	68	57.78	130	90	103.33	14	116	76	59.56	14	116	76	59.56	130	86	100.67	14	116	72
76	90.67	14	106	62	51.11	14	106	62	51.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	76	90.67	16	104	60
90	100.00	10	110	80	60.00	14	106	76	57.33	120	90	100.00	12	108	78	58.67	14	106	76	57.33	120	80	93.33	14	106	66
80	96.67	16	114	64	53.78	16	114	64	53.78	130	86	100.67	16	114	70	56.44	18	112	68	55.11	130	80	96.67	16	114	64
80	99.33	24	114	56	50.22	32	106	48	44.89	140	80	100.00	24	116	56	50.67	28	112	52	48.00	140	80	100.00	32	108	48
74	87.33	30	84	44	38.22	28	86	46	39.56	110	76	87.33	30	80	46	38.22	26	84	50	40.89	110	80	90.00	34	76	46
70	84.67	14	100	56	47.11	14	100	56	47.11	114	80	91.33	10	104	70	54.22	12	102	68	52.89	110	80	90.00	14	96	66
80	92.00	26	90	54	44.00	24	92	56	45.33	120	70	86.67	30	90	40	37.78	28	92	42	39.11	120	80	93.33	24	96	56
80	96.67	26	104	54	47.11	30	100	50	44.44	136	80	98.67	24	112	56	49.78	28	108	52	47.11	130	80	96.67	30	100	50
80	90.00	30	80	50	40.00	28	82	52	41.33	110	84	92.67	28	82	56	43.11	28	82	56	43.11	110	80	90.00	30	80	50
70	86.67	26	94	44	40.44	40	80	30	31.11	120	76	90.67	22	98	54	45.78	36	84	40	36.44	116	70	85.33	30	86	40
80	100.00	36	104	44	42.67	30	110	50	46.67	140	80	100.00	32	108	48	45.33	26	114	54	49.33	136	80	98.67	40	96	40
60	76.00	24	84	36	34.67	28	80	32	32.00	110	64	79.33	22	88	42	38.22	30	80	34	32.89	100	60	73.33	28	72	32
72	84.67	14	96	58	47.11	20	90	52	43.11	110	76	87.33	14	96	62	48.89	18	92	58	46.22	110	70	83.33	20	90	50
80	95.33	18	108	62	51.56	18	108	62	51.56	130	76	94.00	16	114	60	52.00	20	110	56	49.33	130	80	96.67	20	110	60
70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	76	87.33	20	90	56
74	82.67	14	86	60	45.78	16	84	58	44.44	110	70	83.33	14	96	56	46.22	14	96	56	46.22	100	70	80.00	18	82	52
70	83.33	12	98	58	47.56	14	96	56	46.22	100	70	80.00	18	82	52	41.33	16	84	54	42.67	100	70	80.00	20	80	50
80	90.00	24	86	56	44.00	24	86	56	44.00	120	80	93.33	24	96	56	46.22	22	98	58	47.56	110	76	87.33	28	82	48
80	93.33	26	94	54	44.89	24	96	56	46.22	120	70	86.67	26	94	44	40.44	24	96	46	41.78	114	70	84.67	34	80	36
84	99.33	24	106	60	50.22	38	92	46	40.89	130	80	96.67	26	104	54	47.11	36	94	44	40.44	120	80	93.33	30	90	50
80	93.33	26	94	54	44.89	30	90	50	42.22	120	80	93.33	26	94	54	44.89	24	96	56	46.22	126	80	95.33	30	96	50

D1V3DBP	D1V3MAP	RD1V3IOP	RD1V3SOPP	RD1V3DOPP	RD1V3MOP	LD1V3IOP	LD1V3SOPP	LD1V3DOPP	LD1V3MOP	D1V4SBP	D1V4DBP	D1V4MAP	RD1V4IOP	RD1V4SOPP	RD1V4DOPP	RD1V4MOP	LD1V4IOP	LD1V4SOPP	LD1V4DOPP	LD1V4MOP	D1V5SBP	D1V5DBP	D1V5MAP	RD1V5IOP	RD1V5SOPP	RD1V5DOPP
86	100.67	30	100	56	47.11	28	102	58	48.44	130	86	100.67	26	104	60	49.78	22	108	64	52.44	130	86	100.67	30	100	56
80	93.33	26	94	54	44.89	26	94	54	44.89	120	84	96.00	24	96	60	48.00	24	96	60	48.00	116	80	92.00	30	86	50
80	93.33	30	90	50	42.22	26	94	54	44.89	120	80	93.33	24	96	56	46.22	24	96	56	46.22	120	80	93.33	30	90	50
80	98.67	24	112	56	49.78	26	110	54	48.44	130	80	96.67	24	106	56	48.44	28	102	52	45.78	130	80	96.67	30	100	50
76	84.00	28	72	48	37.33	26	74	50	38.67	100	70	80.00	28	72	42	34.67	24	76	46	37.33	100	70	80.00	36	64	34
80	92.00	36	80	44	37.33	30	86	50	41.33	120	80	93.33	36	84	44	38.22	30	90	50	42.22	120	80	93.33	42	78	38
84	99.33	16	114	68	55.56	16	114	68	55.56	130	84	99.33	14	116	70	56.89	14	116	70	56.89	130	84	99.33	20	110	64
86	100.67	16	114	70	56.44	16	114	70	56.44	130	80	96.67	12	118	68	56.44	14	116	66	55.11	130	90	103.33	20	110	70
80	93.33	18	102	62	50.22	18	102	62	50.22	120	84	96.00	14	106	70	54.67	16	104	68	53.33	120	80	93.33	16	104	64
80	100.00	24	116	56	50.67	24	116	56	50.67	130	80	96.67	24	106	56	48.44	24	106	56	48.44	130	80	96.67	28	102	52
80	96.67	28	102	52	45.78	30	100	50	44.44	130	80	96.67	26	104	54	47.11	30	100	50	44.44	130	76	94.00	32	98	44
80	96.67	16	114	64	53.78	14	116	66	55.11	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60
60	73.33	22	78	38	34.22	26	74	34	31.56	100	64	76.00	22	78	42	36.00	24	76	40	34.67	110	60	76.67	30	80	30
74	86.00	32	78	42	36.00	24	86	50	41.33	110	70	83.33	30	80	40	35.56	22	88	48	40.89	110	70	83.33	40	70	30
80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	14	96	66
84	96.00	14	106	70	54.67	16	104	68	53.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66
80	91.33	14	100	66	51.56	12	102	68	52.89	110	74	86.00	10	100	64	50.67	14	96	60	48.00	110	80	90.00	12	98	68
70	83.33	14	96	56	46.22	14	96	56	46.22	110	70	83.33	16	94	54	44.89	14	96	56	46.22	110	70	83.33	14	96	56
60	73.33	12	88	48	40.89	12	88	48	40.89	100	60	73.33	14	86	46	39.56	10	90	50	42.22	100	64	76.00	14	86	50
76	90.67	16	104	60	49.78	16	104	60	49.78	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120	76	90.67	14	106	62
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	12	108	68	54.22	12	108	68	54.22	120	80	93.33	12	108	68
70	80.00	16	84	54	42.67	12	88	58	45.33	100	70	80.00	16	84	54	42.67	14	86	56	44.00	100	70	80.00	16	84	54
80	93.33	18	102	62	50.22	18	102	62	50.22	110	80	90.00	12	98	68	52.00	12	98	68	52.00	110	80	90.00	12	98	68
70	86.67	18	102	52	45.78	16	104	54	47.11	130	80	96.67	18	112	62	52.44	18	112	62	52.44	120	70	86.67	16	104	54
70	83.33	12	98	58	47.56	14	96	56	46.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	110	80	90.00	12	98	68
60	73.33	12	88	48	40.89	12	88	48	40.89	100	64	76.00	14	86	50	41.33	12	88	52	42.67	100	60	73.33	16	84	44
80	92.00	12	104	68	53.33	14	102	66	52.00	116	80	92.00	14	102	66	52.00	14	102	66	52.00	120	80	93.33	16	104	64
80	93.33	10	110	70	55.56	12	108	68	54.22	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	80	90.00	16	94	64
80	93.33	14	106	66	52.89	12	108	68	54.22	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	16	104	64
84	102.67	14	126	70	59.11	16	124	68	57.78	130	90	103.33	14	116	76	59.56	14	116	76	59.56	130	86	100.67	14	116	72
76	90.67	14	106	62	51.11	14	106	62	51.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	76	90.67	16	104	60
90	100.00	10	110	80	60.00	14	106	76	57.33	120	90	100.00	12	108	78	58.67	14	106	76	57.33	120	80	93.33	14	106	66
80	96.67	16	114	64	53.78	16	114	64	53.78	130	86	100.67	16	114	70	56.44	18	112	68	55.11	130	80	96.67	16	114	64
70	84.67	14	100	56	47.11	14	100	56	47.11	114	80	91.33	10	104	70	54.22	12	102	68	52.89	110	80	90.00	14	96	66
80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	14	96	66
84	96.00	14	106	70	54.67	16	104	68	53.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66
80	91.33	14	100	66	51.56	12	102	68	52.89	110	74	86.00	10	100	64	50.67	14	96	60	48.00	110	80	90.00	12	98	68
70	83.33	14	96	56	46.22	14	96	56	46.22	110	70	83.33	16	94	54	44.89	14	96	56	46.22	110	70	83.33	14	96	56
60	73.33	12	88	48	40.89	12	88	48	40.89	100	60	73.33	14	86	46	39.56	10	90	50	42.22	100	64	76.00	14	86	50
76	90.67	16	104	60	49.78	16	104	60	49.78	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120	76	90.67	14	106	62
70	83.33	12	98	58	47.56	14	96	56	46.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	110	80	90.00	12	98	68
60	73.33	12	88	48	40.89	12	88	48	40.89	100	64	76.00	14	86	50	41.33	12	88	52	42.67	100	60	73.33	16	84	44
80	92.00	12	104	68	53.33	14	102	66	52.00	116	80	92.00	14	102	66	52.00	14	102	66	52.00	120	80	93.33	16	104	64
80	93.33	10	110	70	55.56	12	108	68	54.22	110	70	83.33	12	98	58	47.56	14	96	56	46.22	110	80	90.00	16	94	64
80	93.33	14	106	66	52.89	12	108	68	54.22	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	16	104	64
84	102.67	14	126	70	59.11	16	124	68	57.78	130	90	103.33	14	116	76	59.56	14	116	76	59.56	130	86	100.67	14	116	72
76	90.67	14	106	62	51.11	14	106	62	51.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	76	90.67	16	104	60
90	100.00	10	110	80	60.00	14	106	76	57.33	120	90	100.00	12	108	78	58.67	14	106	76	57.33	120	80	93.33	14	106	66
80	96.67	16	114	64	53.78	16	114	64	53.78	130	86	100.67	16	114	70	56.44	18	112	68	55.11	130	80	96.67	16	114	64
70	84.67	14	100	56	47.11	14	100	56	47.11	114	80	91.33	10	104	70	54.22	12	102	68	52.89	110	80	90.00	14	96	66

RD1V5MOP	LD1V5IOP	LD1V5SOPP	LD1V5DOPI	LD1V5MOP	D1V6SBP	D1V6DBP	D1V6MAP	RD1V6IOP	RD1V6SOPI	RD1V6DOPI	RD1V6MOP	LD1V6IOP	LD1V6SOPP	LD1V6DOPI	LD1V6MOP	D1V7SBP	D1V7DBP	D1V7MAP	RD1V7IOP	RD1V7SOPI	RD1V7DOPI	RD1V7MOP	LD1V7IOP	LD1V7SOPP	LD1V7DOPI	LD1V7MOP
29.33	32	68	38	32.00	110	70	83.33	28	82	42	36.89	26	84	44	38.22	110	70	83.33	30	80	40	35.56	26	84	44	38.22
34.67	16	74	44	36.00	100	60	73.33	14	86	46	39.56	16	84	44	38.22	100	70	80.00	18	82	52	41.33	16	84	54	42.67
44.44	36	104	54	47.11	140	90	106.67	40	100	50	44.44	36	104	54	47.11	140	90	106.67	36	104	54	47.11	34	106	56	48.44
35.56	28	82	42	36.89	110	70	83.33	24	86	46	39.56	22	88	48	40.89	110	70	83.33	24	86	46	39.56	22	88	48	40.89
47.11	16	104	54	47.11	120	70	86.67	14	106	56	48.44	14	106	56	48.44	120	70	86.67	14	106	56	48.44	14	106	56	48.44
47.11	38	92	42	39.11	130	80	96.67	24	106	56	48.44	34	96	46	41.78	130	80	96.67	24	106	56	48.44	36	94	44	40.44
39.56	36	80	40	35.56	110	70	83.33	34	76	36	32.89	36	74	34	31.56	114	76	88.67	34	80	42	36.44	28	86	48	40.44
49.33	14	96	66	50.67	110	80	90.00	12	98	68	52.00	14	96	66	50.67	110	70	83.33	14	96	56	46.22	12	98	58	47.56
42.67	24	92	56	45.33	120	80	93.33	22	98	58	47.56	24	96	56	46.22	120	80	93.33	22	98	58	47.56	24	96	56	46.22
54.67	24	116	56	50.67	140	80	100.00	20	120	60	53.33	24	116	56	50.67	140	80	100.00	26	114	54	49.33	26	114	54	49.33
36.89	38	72	38	32.89	110	70	83.33	26	84	44	38.22	32	78	38	34.22	116	74	88.00	26	90	48	41.33	32	84	42	37.33
54.22	14	106	66	52.89	130	86	100.67	14	116	72	57.78	16	114	70	56.44	120	80	93.33	14	106	66	52.89	16	104	64	51.56
46.22	22	98	64	50.22	110	80	90.00	28	82	52	41.33	22	88	58	45.33	110	80	90.00	30	80	50	40.00	22	88	58	45.33
42.67	18	82	52	41.33	100	70	80.00	16	84	54	42.67	14	86	56	44.00	110	70	83.33	16	94	54	44.89	12	98	58	47.56
51.56	18	102	62	50.22	120	80	93.33	16	104	64	51.56	18	102	62	50.22	110	80	90.00	18	92	62	48.00	18	92	62	48.00
52.89	26	104	64	51.56	130	80	96.67	24	106	56	48.44	28	102	52	45.78	130	80	96.67	24	106	56	48.44	26	104	54	47.11
52.00	12	98	68	52.00	120	80	93.33	16	104	64	51.56	16	104	64	51.56	120	80	93.33	14	106	66	52.89	16	104	64	51.56
47.11	16	104	54	47.11	120	70	86.67	18	102	52	45.78	16	104	54	47.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89
52.00	12	98	68	52.00	110	80	90.00	14	96	66	50.67	16	94	64	49.33	110	80	90.00	10	100	70	53.33	12	98	68	52.00
39.11	20	90	40	37.78	110	70	83.33	14	96	56	46.22	14	96	56	46.22	110	70	60.00	14	96	56	30.67	14	96	56	30.67
44.00	32	88	58	45.33	130	90	103.33	30	100	60	48.89	28	102	62	50.22	120	90	100.00	28	92	62	48.00	26	94	64	49.33
46.22	16	94	60	47.56	110	76	87.33	14	96	62	48.89	14	96	62	48.89	114	76	88.67	14	100	62	49.78	16	98	60	48.44
38.22	12	88	48	40.89	100	60	73.33	14	86	46	39.56	12	88	48	40.89	110	60	76.67	14	96	46	41.78	14	96	46	41.78
51.56	14	106	66	52.89	120	70	86.67	16	104	54	47.11	14	106	56	48.44	120	80	93.33	14	106	66	52.89	14	106	66	52.89
49.33	16	94	64	49.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66	52.89	14	106	66	52.89
51.56	16	104	64	51.56	126	80	95.33	16	110	64	52.89	14	112	66	54.22	110	80	90.00	14	96	66	50.67	14	96	66	50.67
42.22	34	86	46	39.56	120	80	93.33	28	92	52	43.56	28	92	52	43.56	130	80	96.67	26	104	54	47.11	28	102	52	45.78
33.78	26	94	44	40.44	110	70	83.33	34	76	36	32.89	24	86	46	39.56	110	76	87.33	38	70	38	32.89	24	86	52	42.22
57.78	16	114	70	56.44	126	80	95.33	16	110	64	52.89	16	110	64	52.89	126	80	95.33	14	112	66	54.22	16	110	64	52.89
49.78	18	102	58	48.44	120	80	93.33	16	104	64	51.56	16	104	64	51.56	110	60	76.67	14	96	46	41.78	14	96	46	41.78
52.89	16	104	64	51.56	120	90	100.00	12	108	78	58.67	14	106	76	57.33	110	60	76.67	14	96	46	41.78	14	96	46	41.78
53.78	16	114	64	53.78	120	90	100.00	14	106	76	57.33	14	106	76	57.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89
45.33	34	106	46	44.00	140	80	100.00	30	110	50	46.67	30	110	50	46.67	140	80	100.00	28	112	52	48.00	30	110	50	46.67
37.33	28	82	52	41.33	110	80	90.00	30	80	50	40.00	24	86	56	44.00	110	76	87.33	32	78	44	36.89	24	86	52	42.22
50.67	12	98	68	52.00	114	80	91.33	12	102	68	52.89	12	102	68	52.89	114	78	90.00	10	104	68	53.33	12	102	66	52.00
46.22	26	94	54	44.89	120	80	93.33	24	96	56	46.22	26	94	54	44.89	110	70	83.33	24	86	46	39.56	26	84	44	38.22
44.44	34	96	46	41.78	130	80	96.67	26	104	54	47.11	30	100	50	44.44	136	80	98.67	26	110	54	48.44	28	108	52	47.11
40.00	34	76	46	37.33	110	86	94.00	26	84	60	45.33	32	78	54	41.33	110	80	90.00	28	82	52	41.33	30	80	50	40.00
36.89	42	74	28	28.89	120	70	86.67	26	94	44	40.44	40	80	30	31.11	116	70	85.33	28	88	42	38.22	38	78	32	31.56
39.11	34	102	46	43.11	140	80	100.00	34	106	46	44.00	32	108	48	45.33	130	80	96.67	30	100	50	44.44	30	100	50	44.44
30.22	34	66	26	26.22	110	60	76.67	28	82	32	32.44	30	80	30	31.11	100	60	73.33	26	74	34	31.56	30	70	30	28.89
42.22	18	92	52	43.56	110	76	87.33	18	92	58	46.22	18	92	58	46.22	110	70	83.33	14	96	56	46.22	14	96	56	46.22
51.11	20	110	60	51.11	120	80	93.33	16	104	64	51.56	16	104	64	51.56	130	80	96.67	16	114	64	53.78	18	112	62	52.44
44.89	18	92	58	46.22	110	70	83.33	20	90	50	42.22	16	94	54	44.89	110	70	83.33	18	92	52	43.56	16	94	54	44.89
41.33	20	80	50	40.00	110	70	83.33	16	94	54	44.89	14	96	56	46.22	110	70	83.33	16	94	54	44.89	14	96	56	46.22
40.00	18	82	52	41.33	100	70	80.00	18	82	52	41.33	16	84	54	42.67	100	70	80.00	16	84	54	42.67	16	84	54	42.67
39.56	28	82	48	39.56	110	80	90.00	26	84	54	42.67	24	86	56	44.00	110	80	90.00	26	84	54	42.67	24	86	56	44.00
33.78	30	84	40	36.44	110	70	83.33	30	80	40	35.56	28	82	42	36.89	110	80	90.00	32	78	48	38.67	26	84	54	42.67
42.22	38	82	42	36.89	126	80	95.33	26	100	54	46.22	32	94	48	42.22	130	80	96.67	24	106	56	48.44	32	98	48	43.11
43.56	28	98	52	44.89	126	80	95.33	26	100	54	46.22	26	100	54	46.22	120	80	93.33	24	96	56	46.22	26	94	54	44.89

RD1V5MOP	LD1V5IOP	LD1V5SOPP	LD1V5DOPP	LD1V5MOP	D1V6SBP	D1V6DBP	D1V6MAP	RD1V6IOP	RD1V6SOPP	RD1V6DOPP	RD1V6MOP	LD1V6IOP	LD1V6SOPP	LD1V6DOPP	LD1V6MOP	D1V7SBP	D1V7DBP	D1V7MAP	RD1V7IOP	RD1V7SOPP	RD1V7DOPP	RD1V7MOP	LD1V7IOP	LD1V7SOPP	LD1V7DOPP	LD1V7MOP
47.11	28	102	58	48.44	130	80	96.67	26	104	54	47.11	24	106	56	48.44	130	80	96.67	28	102	52	45.78	24	106	56	48.44
41.33	30	86	50	41.33	120	80	93.33	26	94	54	44.89	26	94	54	44.89	120	80	93.33	28	92	52	43.56	24	96	56	46.22
42.22	34	86	46	39.56	120	80	93.33	28	92	52	43.56	30	90	50	42.22	116	80	92.00	28	88	52	42.67	26	90	54	44.00
44.44	32	98	48	43.11	130	80	96.67	26	104	54	47.11	28	102	52	45.78	130	80	96.67	26	104	54	47.11	28	102	52	45.78
29.33	30	70	40	33.33	100	70	80.00	30	70	40	33.33	26	74	44	36.00	100	70	80.00	32	68	38	32.00	26	74	44	36.00
34.22	34	86	46	39.56	120	80	93.33	34	86	46	39.56	28	92	52	43.56	120	80	93.33	38	82	42	36.89	30	90	50	42.22
52.89	18	112	66	54.22	130	80	96.67	18	112	62	52.44	16	114	64	53.78	130	80	96.67	16	114	64	53.78	14	116	66	55.11
55.56	18	112	72	56.89	130	90	103.33	16	114	74	58.22	14	116	76	59.56	130	90	103.33	18	112	72	56.89	16	114	74	58.22
51.56	20	100	60	48.89	120	80	93.33	14	106	66	52.89	18	102	62	50.22	120	80	93.33	16	104	64	51.56	20	100	60	48.89
45.78	26	104	54	47.11	130	80	96.67	30	100	50	44.44	28	102	52	45.78	130	80	96.67	28	102	52	45.78	24	106	56	48.44
41.33	38	92	38	37.33	130	80	96.67	28	102	52	45.78	32	98	48	43.11	130	86	100.67	28	102	58	48.44	34	96	52	44.44
51.11	18	112	62	52.44	130	80	96.67	16	114	64	53.78	14	116	66	55.11	130	80	96.67	16	114	64	53.78	14	116	66	55.11
31.11	34	76	26	28.44	100	60	73.33	28	72	32	30.22	28	72	32	30.22	100	60	73.33	24	76	36	32.89	28	72	32	30.22
28.89	8	102	62	50.22	110	70	83.33	34	76	36	32.89	24	86	46	39.56	110	70	83.33	34	76	36	32.89	26	84	44	38.22
50.67	14	96	66	50.67	110	80	90.00	14	96	66	50.67	12	98	68	52.00	110	70	83.33	10	100	60	48.89	14	96	56	46.22
52.89	14	106	66	52.89	110	80	90.00	14	96	66	50.67	16	94	64	49.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67
52.00	14	96	66	50.67	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33	12	98	68	52.00
46.22	14	96	56	46.22	110	70	83.33	14	96	56	46.22	16	94	54	44.89	110	70	83.33	14	96	56	46.22	14	96	56	46.22
41.33	14	86	50	41.33	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	70	80.00	14	86	56	44.00	14	86	56	44.00
51.11	12	108	64	52.44	120	80	93.33	16	104	64	51.56	16	104	64	51.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89
54.22	14	106	66	52.89	130	86	100.67	14	116	72	57.78	16	114	70	56.44	120	80	93.33	14	106	66	52.89	14	106	66	52.89
42.67	18	82	52	41.33	100	70	80.00	16	84	54	42.67	14	86	56	44.00	110	70	83.33	16	94	54	44.89	12	98	58	47.56
52.00	12	98	68	52.00	120	80	93.33	16	104	64	51.56	16	104	64	51.56	110	70	83.33	16	94	54	44.89	12	98	58	47.56
47.11	16	104	54	47.11	120	70	86.67	18	102	52	45.78	16	104	54	47.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89
52.00	12	98	68	52.00	110	80	90.00	14	96	66	50.67	16	94	64	49.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89
38.22	12	88	48	40.89	100	60	73.33	14	86	46	39.56	12	88	48	40.89	110	60	76.67	14	96	46	41.78	14	96	46	41.78
51.56	14	106	66	52.89	120	70	86.67	16	104	54	47.11	14	106	56	48.44	120	80	93.33	14	106	66	52.89	14	106	66	52.89
49.33	16	94	64	49.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66	52.89	14	106	66	52.89
51.56	16	104	64	51.56	126	80	95.33	16	110	64	52.89	14	112	66	54.22	110	80	90.00	14	96	66	50.67	14	96	66	50.67
57.78	16	114	70	56.44	126	80	95.33	16	110	64	52.89	16	110	64	52.89	100	70	80.00	14	86	56	44.00	14	86	56	44.00
49.78	18	102	58	48.44	120	80	93.33	16	104	64	51.56	16	104	64	51.56	100	70	80.00	14	86	56	44.00	14	86	56	44.00
52.89	16	104	64	51.56	120	90	100.00	12	108	78	58.67	14	106	76	57.33	110	60	76.67	14	96	46	41.78	14	96	46	41.78
53.78	16	114	64	53.78	120	90	100.00	14	106	76	57.33	14	106	76	57.33	110	70	83.33	14	96	56	46.22	14	96	56	46.22
50.67	12	98	68	52.00	114	80	91.33	12	102	68	52.89	12	102	68	52.89	114	78	90.00	10	104	68	53.33	12	102	66	52.00
50.67	14	96	66	50.67	110	80	90.00	14	96	66	50.67	12	98	68	52.00	110	70	83.33	10	100	60	48.89	14	96	56	46.22
52.89	14	106	66	52.89	110	80	90.00	14	96	66	50.67	16	94	64	49.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67
52.00	14	96	66	50.67	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33	12	98	68	52.00
46.22	14	96	56	46.22	110	70	83.33	14	96	56	46.22	16	94	54	44.89	110	70	83.33	14	96	56	46.22	14	96	56	46.22
41.33	14	86	50	41.33	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	70	80.00	14	86	56	44.00	14	86	56	44.00
51.11	12	108	64	52.44	120	80	93.33	16	104	64	51.56	16	104	64	51.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89
52.00	12	98	68	52.00	110	80	90.00	14	96	66	50.67	16	94	64	49.33	120	80	93.33	14	96	56	46.22	14	96	56	46.22
38.22	12	88	48	40.89	100	60	73.33	14	86	46	39.56	12	88	48	40.89	110	60	76.67	14	96	46	41.78	14	96	46	41.78
51.56	14	106	66	52.89	120	70	86.67	16	104	54	47.11	14	106	56	48.44	120	80	93.33	14	106	66	52.89	14	106	66	52.89
49.33	16	94	64	49.33	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	14	106	66	52.89	14	106	66	52.89
51.56	16	104	64	51.56	126	80	95.33	16	110	64	52.89	14	112	66	54.22	110	80	90.00	10	100	70	53.33	12	98	68	52.00
57.78	16	114	70	56.44	126	80	95.33	16	110	64	52.89	16	110	64	52.89	126	80	95.33	14	112	66	54.22	16	110	64	52.89
49.78	18	102	58	48.44	120	80	93.33	16	104	64	51.56	16	104	64	51.56	116	80	92.00	14	80	66	52.00	14	102	66	52.00
52.89	16	104	64	51.56	120	90	100.00	12	108	78	58.67	14	106	76	57.33	120	90	100.00	12	108	78	58.67	12	108	78	58.67
53.78	16	114	64	53.78	120	90	100.00	14	106	76	57.33	14	106	76	57.33	110	70	83.33	16	94	54	44.89	12	98	58	47.56
50.67	12	98	68	52.00	114	80	91.33	12	102	68	52.89	12	102	68	52.89	114	78	90.00	10	104	68	53.33	12	102	66	52.00

RD1MD	RD1LV	LD1MD	LD1LV	D2V1SBP	D2V1DBP	D2V1MAP	RD2V1IOP	RD2V1SOPP	RD2V1DOPI	RD2V1MOP	LD2V1IOP	LD2V1SOPP	LD2V1DOPI	LD2V1MOP	D2V2SBP	D2V2DBP	D2V2MAP	RD2V2IOP	RD2V2SOPP	RD2V2DOPI	RD2V2MOP	LD2V2IOP	LD2V2SOPP	LD2V2DOPI	LD2V2MOP	D3V1SBP
20.7	15.8	22.8	20.5	110	80	90.00	14	96	66	50.67	18	92	62	48.00	110	80	90.00	16	94	64	49.33	20	90	60	46.67	110
6.0	10.4	6.8	8.0	110	76	87.33	14	96	62	48.89	12	98	64	50.22	110	80	90.00	18	92	62	48.00	18	92	62	48.00	110
10.4	27.9	9.0	25.0	130	86	100.67	20	110	66	53.78	16	114	70	56.44	130	80	96.67	24	106	56	48.44	20	110	60	51.11	126
7.2	13.1	7.0	12.2	120	80	93.33	16	104	64	51.56	14	106	66	52.89	120	80	93.33	22	98	58	47.56	18	102	62	50.22	120
9.6	10.0	9.6	10.5	110	80	90.00	10	100	70	53.33	10	100	70	53.33	120	80	93.33	14	106	66	52.89	16	104	64	51.56	120
15.6	18.3	23.0	22.1	130	80	96.67	16	114	64	53.78	20	110	60	51.11	130	80	96.67	20	110	60	51.11	24	106	56	48.44	130
18.2	20.1	14.0	16.4	130	80	96.67	16	114	64	53.78	16	114	64	53.78	130	80	96.67	24	106	56	48.44	20	110	60	51.11	110
8.2	10.2	8.6	11.6	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130
7.6	7.5	7.2	9.8	120	80	93.33	18	102	62	50.22	16	104	64	51.56	120	80	93.33	22	98	58	47.56	20	100	60	48.89	120
9.0	8.2	8.4	7.9	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	20	100	60	48.89	18	102	62	50.22	120
10.2	20.3	18.1	23.0	110	70	83.33	16	94	54	44.89	18	92	52	43.56	110	80	90.00	22	88	58	45.33	26	84	54	42.67	110
2.1	4.2	2.6	4.5	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
3.9	9.1	3.0	6.9	100	80	86.67	18	82	62	45.78	12	88	68	49.78	100	80	86.67	24	76	56	41.78	20	80	60	44.44	110
0.7	3.6	0.5	3.0	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	110
6.1	10.1	7.3	10.5	120	76	90.67	12	108	64	52.44	14	106	62	51.11	120	76	90.67	20	100	56	47.11	18	102	58	48.44	120
8.4	10.7	8.4	11.1	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60	51.11	22	108	58	49.78	130
1.2	3.8	1.8	2.4	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	110
0.7	2.6	0.3	3.0	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
0.7	2.1	0.8	1.3	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
7.6	10.6	8.1	14.0	110	70	83.33	10	100	60	48.89	10	100	60	48.89	110	70	83.33	14	96	56	46.22	14	96	56	46.22	100
9.5	13.0	10.3	13.8	110	80	90.00	16	94	64	49.33	18	92	62	48.00	110	80	90.00	20	90	60	46.67	22	88	58	45.33	110
4.2	7.2	4.5	7.9	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	20	90	50	42.22	20	90	50	42.22	110
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	2.6	0.3	3.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.1	2.3	0.5	2.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
8.0	11.3	9.2	14.6	130	80	96.67	16	114	64	53.78	16	114	64	53.78	130	80	96.67	22	108	58	49.78	22	108	58	49.78	130
23.0	32.8	16.3	22.7	120	70	86.67	18	102	52	45.78	14	106	56	48.44	120	80	93.33	24	96	56	46.22	20	100	60	48.89	120
0.5	2.3	0.1	4.0	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	80	96.67	14	116	66	55.11	16	114	64	53.78	120
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
15.7	20.3	17.0	26.4	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60	51.11	22	108	58	49.78	130
18.1	27.5	15.9	21.4	110	80	90.00	16	94	64	49.33	14	96	66	50.67	110	80	90.00	22	88	58	45.33	20	90	60	46.67	110
0.7	2.1	0.7	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
10.0	8.2	9.4	9.1	130	80	96.67	14	116	66	55.11	16	114	64	53.78	130	80	96.67	20	110	60	51.11	22	108	58	49.78	130
12.4	18.5	16.8	25.8	130	80	96.67	16	114	64	53.78	16	114	64	53.78	110	80	90.00	20	90	60	46.67	24	86	56	44.00	130
17.2	25.0	18.8	28.0	110	80	90.00	16	94	64	49.33	18	92	62	48.00	110	80	90.00	20	90	60	46.67	24	86	56	44.00	110
15.2	19.6	23.0	32.8	120	70	86.67	16	104	54	47.11	18	102	52	45.78	110	80	90.00	22	88	58	45.33	26	84	54	42.67	120
20.0	28.6	13.6	19.0	130	80	96.67	20	110	60	51.11	16	114	64	53.78	130	80	96.67	26	104	54	47.11	22	108	58	49.78	130
13.1	10.0	17.5	25.9	100	60	73.33	12	88	48	40.89	16	84	44	38.22	100	60	73.33	18	82	42	36.89	22	78	38	34.22	100
4.2	9.0	5.8	10.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	120	80	93.33	18	102	62	50.22	20	100	60	48.89	120
4.9	9.1	7.3	10.5	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	18	92	52	43.56	18	92	52	43.56	110
6.4	11.0	6.0	9.8	100	70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	16	84	54	42.67	14	86	56	44.00	100
5.1	10.5	5.0	10.1	100	70	80.00	12	88	58	45.33	12	88	58	45.33	100	70	80.00	18	82	52	41.33	18	82	52	41.33	100
4.5	8.0	4.2	7.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	100
8.4	10.7	8.0	10.1	110	80	90.00	16	94	64	49.33	14	96	66	50.67	110	80	90.00	22	88	58	45.33	20	90	60	46.67	110
14.0	19.0	13.4	17.8	110	80	90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	24	86	56	44.00	22	88	58	45.33	120
16.2	20.0	18.1	26.7	130	80	96.67	14	116	66	55.11	18	112	62	52.44	130	80	96.67	22	108	58	49.78	24	106	56	48.44	130
9.4	10.6	8.0	9.8	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	76	90.67	18	102	58	48.44	18	102	58	48.44	120

RD1MD	RD1LV	LD1MD	LD1LV	D2V1SBP	D2V1DBP	D2V1MAP	RD2V1IOP	RD2V1SOPP	RD2V1DOPP	RD2V1MOP	LD2V1IOP	LD2V1SOPP	LD2V1DOPP	LD2V1MOP	D2V2SBP	D2V2DBP	D2V2MAP	RD2V2IOP	RD2V2SOPP	RD2V2DOPP	RD2V2MOP	LD2V2IOP	LD2V2SOPP	LD2V2DOPP	LD2V2MOP	D3V1SBP
15.0	23.1	15.8	18.2	130	80	96.67	16	114	64	53.78	14	116	66	55.11	130	80	96.67	20	110	60	51.11	20	110	60	51.11	130
10.8	13.0	10.0	11.4	110	70	83.33	14	96	56	46.22	12	98	58	47.56	110	80	90.00	20	90	60	46.67	18	92	62	48.00	120
10.0	14.6	10.2	16.4	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	120
16.0	22.2	22.0	24.5	120	76	90.67	14	106	62	51.11	18	102	58	48.44	120	80	93.33	22	98	58	47.56	24	96	56	46.22	120
17.5	23.0	13.5	18.5	100	70	80.00	16	84	54	42.67	14	86	56	44.00	100	70	80.00	24	76	46	37.33	20	80	50	40.00	100
20.0	30.6	14.8	22.6	120	80	93.33	20	100	60	48.89	16	104	64	51.56	110	80	90.00	26	84	54	42.67	24	86	56	44.00	110
7.3	11.6	7.0	10.1	130	80	96.67	12	118	68	56.44	14	116	66	55.11	120	80	93.33	16	104	64	51.56	18	102	62	50.22	120
7.0	10.5	9.2	10.0	130	90	103.33	12	118	78	60.89	12	118	78	60.89	130	80	96.67	18	112	62	52.44	16	114	64	53.78	130
9.6	11.4	10.2	12.3	120	76	90.67	12	108	64	52.44	12	108	64	52.44	120	80	93.33	18	102	62	50.22	20	100	60	48.89	120
13.0	17.7	12.1	17.1	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	18	112	62	52.44	18	112	62	52.44	130
13.2	20.1	15.0	22.3	120	76	90.67	14	106	62	51.11	18	102	58	48.44	130	80	96.67	20	110	60	51.11	24	106	56	48.44	130
8.6	11.6	8.2	10.0	120	80	93.33	12	108	68	54.22	12	108	68	54.22	130	80	96.67	18	112	62	52.44	18	112	62	52.44	120
13.4	18.1	15.0	20.6	110	70	83.33	14	96	56	46.22	14	96	56	46.22	120	80	93.33	18	102	62	50.22	20	100	60	48.89	100
23.0	32.8	18.2	27.4	110	70	83.33	20	90	50	42.22	14	96	56	46.22	110	70	83.33	26	84	44	38.22	20	90	50	42.22	110
1.1	3.5	0.8	2.6	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	16	94	64	49.33	14	96	66	50.67	110
0.1	2.3	0.5	2.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
0.7	2.1	0.8	1.3	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
1.2	3.0	0.9	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.5	1.8	1.0	1.5	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	3.6	0.5	3.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	3.6	0.5	3.0	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
0.7	2.6	0.3	3.0	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
0.7	2.6	0.3	3.0	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
0.7	2.6	0.3	3.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.1	2.3	0.5	2.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
0.5	1.8	1.0	1.5	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	100
0.5	1.8	1.0	1.5	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
1.2	3.0	0.9	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	2.1	0.7	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
1.1	3.5	0.8	2.6	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	16	94	64	49.33	14	96	66	50.67	110
0.1	2.3	0.5	2.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
0.7	2.1	0.8	1.3	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
1.2	3.0	0.9	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.5	1.8	1.0	1.5	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	110
0.3	1.6	0.7	2.1	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
1.2	3.0	0.9	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.8	4.0	0.6	3.5	100	60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	100
1.4	3.6	1.9	3.8	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120
0.7	2.6	0.3	3.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	2.1	0.8	1.3	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
0.5	2.3	0.1	4.0	130	80	96.67	10	120	70	57.78	12	118	68	56.44	130	80	96.67	14	116	66	55.11	16	114	64	53.78	120
1.7	2.3	1.0	2.6	120	76	90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	110
0.8	3.2	0.6	3.3	110	80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110
0.7	3.6	0.5	3.0	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110
0.7	2.1	0.7	2.6	110	70	83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120

D3V1DBP	D3V1MAP	RD3V1IOP	RD3V1SOPP	RD3V1DOPP	RD3V1MOP	LD3V1IOP	LD3V1SOPP	LD3V1DOPP	LD3V1MOP	D3V2SBP	D3V2DBP	D3V2MAP	RD3V2IOP	RD3V2SOPP	RD3V2DOPP	RD3V2MOP	LD3V2IOP	LD3V2SOPP	LD3V2DOPP	LD3V2MOP	RD3MD	RD3LV	LD3MD	LD3LV	D4V1SBP	D4V1DBP
80	90.00	14	96	66	50.67	16	94	64	49.33	110	80	90.00	20	90	60	46.67	20	90	60	46.67	21.4	18.8	23.8	23.1	110	80
76	87.33	14	96	62	48.89	12	98	64	50.22	110	80	90.00	18	92	62	48.00	18	92	62	48.00	7.1	11.2	8.0	9.5	110	80
80	95.33	18	108	62	51.56	16	110	64	52.89	126	80	95.33	20	106	60	50.22	20	106	60	50.22	10.9	27.6	10.0	26.0	126	80
80	93.33	16	104	64	51.56	14	106	66	52.89	120	80	93.33	14	106	66	52.89	14	106	66	52.89	7.4	13.3	7.6	12.8	120	80
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	16	104	64	51.56	9.9	10.2	10.0	11.3	120	80
80	96.67	18	112	62	52.44	20	110	60	51.11	130	80	96.67	20	110	60	51.11	22	108	58	49.78	17.3	20.4	26.8	26.0	130	80
80	90.00	18	92	62	48.00	16	94	64	49.33	110	80	90.00	22	88	58	45.33	20	90	60	46.67	18.9	21.5	14.7	17.3	110	80
80	96.67	10	120	70	57.78	10	120	70	57.78	120	80	93.33	14	106	66	52.89	14	106	66	52.89	8.6	10.6	8.9	12.0	130	80
80	93.33	16	104	64	51.56	16	104	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	8.1	8.5	8.4	11.0	120	80
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	9.7	9.0	9.3	8.9	120	80
76	87.33	14	96	62	48.89	16	94	60	47.56	110	70	83.33	22	88	48	40.89	26	84	44	38.22	11.9	23.1	19.5	24.2	110	76
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	76
80	90.00	16	94	64	49.33	12	98	68	52.00	120	80	93.33	22	98	58	47.56	20	100	60	48.89	6.1	13.1	5.6	8.7	110	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.0	1.6	1.0	2.5	120	80
80	93.33	10	110	70	55.56	14	106	66	52.89	120	80	93.33	20	100	60	48.89	18	102	62	50.22	6.3	10.4	7.5	10.7	120	80
76	94.00	14	116	62	53.33	14	116	62	53.33	130	76	94.00	20	110	56	49.33	22	108	54	48.00	9.5	12.6	10.0	13.9	130	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	0.7	3.0	0.8	2.0	110	70
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	76
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
70	80.00	10	90	60	46.67	12	88	58	45.33	100	70	80.00	16	84	54	42.67	16	84	54	42.67	9.0	12.0	9.1	15.3	100	70
80	90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	20	90	60	46.67	22	88	58	45.33	13.5	17.3	12.0	17.2	110	80
70	83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	20	90	50	42.22	18	92	52	43.56	5.5	8.6	6.0	9.4	110	70
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.0	1.6	1.0	2.5	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	80
80	96.67	16	114	64	53.78	14	116	66	55.11	130	80	96.67	22	108	58	49.78	20	110	60	51.11	9.6	12.7	10.3	16.0	130	80
70	86.67	18	102	52	45.78	16	104	54	47.11	114	70	84.67	22	92	48	41.78	20	94	50	43.11	25.8	33.6	17.4	23.7	120	70
80	93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	0.7	2.1	0.3	2.3	120	80
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.0	1.6	1.0	2.5	110	80
80	96.67	14	116	66	55.11	14	116	66	55.11	120	80	93.33	20	100	60	48.89	22	98	58	47.56	16.8	21.7	18.0	27.3	120	80
80	90.00	16	94	64	49.33	14	96	66	50.67	110	80	90.00	20	90	60	46.67	20	90	60	46.67	19.4	28.8	16.7	22.3	120	80
80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	11.2	9.1	10.2	10.6	100	70
80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60	51.11	20	110	60	51.11	13.3	19.7	18.6	27.2	120	80
80	96.67	16	114	64	53.78	16	114	64	53.78	120	80	93.33	20	100	60	48.89	22	98	58	47.56	13.3	19.7	18.6	27.2	120	80
80	90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	20	90	60	46.67	20	90	60	46.67	18.5	26.2	20.7	30.0	110	80
80	93.33	16	104	64	51.56	20	100	60	48.89	120	80	93.33	22	98	58	47.56	26	94	54	44.89	17.5	20.5	26.8	35.2	120	80
80	96.67	18	112	62	52.44	16	114	64	53.78	130	80	96.67	20	110	60	51.11	20	110	60	51.11	22.8	29.9	10.9	20.2	130	80
70	80.00	12	88	58	45.33	14	86	56	44.00	110	80	90.00	18	92	62	48.00	18	92	62	48.00	14.2	11.3	18.7	26.9	110	70
80	93.33	12	108	68	54.22	12	108	68	54.22	120	80	93.33	18	102	62	50.22	18	102	62	50.22	5.8	10.3	8.2	11.4	130	80
70	83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	7.3	12.2	6.2	11.0	110	70
70	80.00	14	86	56	44.00	10	90	60	46.67	110	70	83.33	16	94	54	44.89	14	96	56	46.22	5.7	11.3	5.8	10.9	100	70
70	80.00	12	88	58	45.33	12	88	58	45.33	100	70	80.00	16	84	54	42.67	16	84	54	42.67	5.9	11.5	5.8	11.0	100	70
70	80.00	12	88	58	45.33	12	88	58	45.33	110	70	83.33	18	92	52	43.56	18	92	52	43.56	5.4	8.9	4.8	8.3	100	70
80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	20	90	60	46.67	20	90	60	46.67	8.9	11.5	9.2	11.5	110	80
70	86.67	16	104	54	47.11	16	104	54	47.11	110	80	90.00	20	90	60	46.67	20	90	60	46.67	16.6	20.6	14.6	18.7	110	80
80	96.67	14	116	66	55.11	18	112	62	52.44	130	80	96.67	22	108	58	49.78	22	108	58	49.78	18.0	22.3	20.2	27.8	120	80
80	93.33	14	106	66	52.89	14	106	66	52.89	110	80	90.00	18	92	62	48.00	16	94	64	49.33	10.5	11.3	8.9	11.0	120	76

D3V1DBP	D3V1MAP	RD3V1IOP	RD3V1SOPR	RD3V1DOPR	RD3V1MOP	LD3V1IOP	LD3V1SOPR	LD3V1DOPR	LD3V1MOP	D3V2SBP	D3V2DBP	D3V2MAP	RD3V2IOP	RD3V2SOPR	RD3V2DOPR	RD3V2MOP	LD3V2IOP	LD3V2SOPR	LD3V2DOPR	LD3V2MOP	RD3MD	RD3LV	LD3MD	LD3LV	D4V1SBP	D4V1DBP
80	96.67	14	116	66	55.11	14	116	66	55.11	120	84	96.00	20	100	64	50.67	18	102	66	52.00	16.3	24.8	16.9	19.3	120	80
80	93.33	20	100	60	48.89	18	102	62	50.22	120	80	93.33	14	106	66	52.89	14	106	66	52.89	11.9	15.1	11.0	12.5	110	80
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	18	102	62	50.22	20	100	60	48.89	11.9	14.1	11.0	12.5	120	80
80	93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	17.3	23.1	23.3	25.6	120	80
70	80.00	16	84	54	42.67	14	86	56	44.00	100	70	80.00	24	76	46	37.33	20	80	50	40.00	19.1	24.9	14.1	20.1	100	70
80	90.00	18	92	62	48.00	16	94	64	49.33	110	80	90.00	26	84	54	42.67	24	86	56	44.00	24.2	32.0	16.0	23.7	110	80
76	90.67	12	108	64	52.44	12	108	64	52.44	120	80	93.33	16	104	64	51.56	18	102	62	50.22	8.1	12.8	7.9	10.9	120	76
80	96.67	12	118	68	56.44	14	116	66	55.11	120	80	93.33	18	102	62	50.22	16	104	64	51.56	8.1	11.4	10.1	11.1	130	80
80	93.33	14	106	66	52.89	12	108	68	54.22	120	80	93.33	18	102	62	50.22	20	100	60	48.89	10.4	12.1	11.5	13.0	120	80
80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60	51.11	18	112	62	52.44	14.7	18.5	13.4	18.2	130	80
80	96.67	14	116	66	55.11	14	116	66	55.11	120	80	93.33	20	100	60	48.89	22	98	58	47.56	15.9	23.2	17.1	24.9	130	80
80	93.33	12	108	68	54.22	14	106	66	52.89	100	80	86.67	18	82	62	45.78	18	82	62	45.78	9.5	12.5	9.0	11.3	120	80
70	80.00	14	86	56	44.00	16	84	54	42.67	100	70	80.00	18	82	52	41.33	20	80	50	40.00	14.2	19.4	16.1	22.2	100	70
70	83.33	18	92	52	43.56	14	96	56	46.22	110	80	90.00	24	86	56	44.00	20	90	60	46.67	27.0	35.6	19.9	28.8	110	80
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.5	3.6	1.0	2.8	110	80
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	100	60
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	0.7	2.0	1.8	2.3	110	70
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	1.0	1.6	1.0	2.5	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.0	1.6	1.0	2.5	110	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.0	1.6	1.0	2.5	120	80
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	76
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	76
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	1.0	1.6	1.0	2.5	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	120	80
70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	14	86	56	44.00	16	84	54	42.67	0.7	2.0	1.8	2.3	110	70
70	80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	14	86	56	44.00	16	84	54	42.67	0.7	2.0	1.8	2.3	110	70
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	11.2	9.1	10.2	10.6	100	70
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.5	3.6	1.0	2.8	110	80
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	110	70
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	0.7	2.0	1.8	2.3	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
60	73.33	10	90	50	42.22	10	90	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.7	2.1	0.6	8.0	100	60
80	93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	1.0	1.6	1.0	2.5	110	70
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	110	70
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
80	93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	0.7	2.1	0.3	2.3	120	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	2.0	0.9	2.2	110	70
80	90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	110	80
70	83.33	10	100	60	48.89	12	98	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.0	1.6	1.0	2.5	120	80
80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	11.2	9.1	10.2	10.6	120	80

D4V1MAP	RD4V1IOP	RD4V1SOPR	RD4V1DOPR	RD4V1MOP	LD4V1IOP	LD4V1SOPR	LD4V1DOPR	LD4V1MOP	D4V2SBP	D4V2DBP	D4V2MAP	RD4V2IOP	RD4V2SOPR	RD4V2DOPR	RD4V2MOP	LD4V2IOP	LD4V2SOPR	LD4V2DOPR	LD4V2MOP	D5V1SBP	D5V1DBP	D5V1MAP	RD5V1IOP	RD5V1SOPR	RD5V1DOPR	RD5V1MOP
90.00	14	96	66	50.67	16	94	64	49.33	110	70	83.33	16	94	54	44.89	22	88	48	40.89	110	80	90.00	14	96	66	50.67
90.00	14	96	66	50.67	12	98	68	52.00	110	76	87.33	14	96	62	48.89	12	98	64	50.22	110	80	90.00	14	80	66	50.67
95.33	18	108	62	51.56	16	110	64	52.89	126	80	95.33	22	104	58	48.89	22	104	58	48.89	126	80	95.33	18	108	62	51.56
93.33	16	104	64	51.56	14	106	66	52.89	120	80	93.33	22	98	58	47.56	20	100	60	48.89	120	80	93.33	14	106	66	52.89
93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	10	110	70	55.56
96.67	16	114	64	53.78	18	112	62	52.44	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	80	93.33	16	104	64	51.56
90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	20	90	60	46.67	20	90	60	46.67	120	80	93.33	16	104	64	51.56
96.67	10	120	70	57.78	12	118	68	56.44	130	80	96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	10	120	70	57.78
93.33	16	104	64	51.56	14	106	66	52.89	120	76	90.67	20	100	56	47.11	20	100	56	47.11	120	80	93.33	14	106	66	52.89
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	120	80	93.33	14	80	66	52.89
87.33	14	96	62	48.89	16	94	60	47.56	120	80	93.33	20	100	60	48.89	24	96	56	46.22	110	80	90.00	14	96	66	50.67
90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	10	110	70	55.56
90.00	18	92	62	48.00	12	98	68	52.00	110	80	90.00	24	86	56	44.00	20	90	60	46.67	110	80	90.00	16	94	64	49.33
93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	100	60	73.33	10	90	50	42.22
93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	76	90.67	12	108	64	52.44
96.67	14	116	66	55.11	16	114	64	53.78	130	80	96.67	16	114	64	53.78	20	110	60	51.11	120	80	93.33	14	106	66	52.89
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120	80	93.33	10	110	70	55.56
90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	10	110	70	55.56
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33
80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	16	84	54	42.67	14	86	56	44.00	100	70	80.00	12	88	58	45.33
90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	20	90	60	46.67	20	90	60	46.67	100	70	80.00	14	86	56	44.00
83.33	12	98	58	47.56	12	98	58	47.56	100	70	80.00	18	82	52	41.33	18	82	52	41.33	100	80	86.67	12	88	68	49.78
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	10	100	60	48.89
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	100	60	73.33	10	90	50	42.22
96.67	16	114	64	53.78	14	116	66	55.11	120	80	93.33	22	98	58	47.56	20	100	60	48.89	130	80	96.67	16	114	64	53.78
86.67	16	104	54	47.11	14	106	56	48.44	120	70	86.67	24	96	46	41.78	22	98	48	43.11	116	70	85.33	16	100	54	46.22
93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	126	80	95.33	10	116	70	56.89
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
90.00	10	100	70	53.33	10	100	70	53.33	120	80	93.33	14	106	66	52.89	16	104	64	51.56	110	70	83.33	12	98	58	47.56
93.33	14	106	66	52.89	16	104	64	51.56	130	80	96.67	22	108	58	49.78	20	110	60	51.11	130	80	96.67	16	114	64	53.78
93.33	14	106	66	52.89	14	106	66	52.89	110	80	90.00	18	92	62	48.00	20	90	60	46.67	110	80	90.00	16	94	64	49.33
80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	14	86	56	44.00	16	84	54	42.67	120	80	93.33	14	106	66	52.89
93.33	14	106	66	52.89	14	106	66	52.89	130	80	96.67	20	110	60	51.11	20	110	60	51.11	130	80	96.67	16	114	64	53.78
93.33	16	104	64	51.56	14	106	66	52.89	110	80	90.00	20	90	60	46.67	20	90	60	46.67	130	80	96.67	14	116	66	55.11
90.00	16	94	64	49.33	16	94	64	49.33	110	80	90.00	20	90	60	46.67	22	88	58	45.33	110	80	90.00	14	96	66	50.67
93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	70	86.67	14	106	56	48.44
96.67	16	114	64	53.78	14	116	66	55.11	120	80	93.33	20	100	60	48.89	18	102	62	50.22	130	80	96.67	14	116	66	55.11
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	18	92	52	43.56	18	92	52	43.56	100	70	80.00	12	88	58	45.33
96.67	12	118	68	56.44	12	118	68	56.44	130	80	96.67	16	114	64	53.78	18	112	62	52.44	130	76	94.00	12	118	64	54.67
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	12	98	58	47.56
80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	16	84	54	42.67	16	84	54	42.67	100	70	80.00	10	90	60	46.67
80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	70	80.00	12	88	58	45.33
80.00	12	88	58	45.33	12	88	58	45.33	100	70	80.00	18	82	52	41.33	18	82	52	41.33	100	70	80.00	10	90	60	46.67
90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	22	88	58	45.33	22	88	58	45.33	110	80	90.00	16	94	64	49.33
90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	18	92	62	48.00	18	92	62	48.00	110	80	90.00	16	94	64	49.33
93.33	14	106	66	52.89	16	104	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	80	93.33	14	106	66	52.89
90.67	14	106	62	51.11	14	106	62	51.11	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	80	93.33	12	108	68	54.22

D4V1MAP	RD4V1IOP	RD4V1SOPR	RD4V1DOPR	RD4V1MOP	LD4V1IOP	LD4V1SOPR	LD4V1DOPR	LD4V1MOP	D4V2SBP	D4V2DBP	D4V2MAP	RD4V2IOP	RD4V2SOPR	RD4V2DOPR	RD4V2MOP	LD4V2IOP	LD4V2SOPR	LD4V2DOPR	LD4V2MOP	D5V1SBP	D5V1DBP	D5V1MAP	RD5V1IOP	RD5V1SOPR	RD5V1DOPR	RD5V1MOP
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	16	104	64	51.56	120	80	93.33	14	106	66	52.89
90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	18	92	62	48.00	18	92	62	48.00	110	80	90.00	14	96	66	50.67
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	110	80	90.00	12	98	68	52.00
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	126	80	95.33	14	112	66	54.22
80.00	14	86	56	44.00	14	86	56	44.00	110	70	83.33	20	90	50	42.22	18	92	52	43.56	100	70	80.00	14	86	56	44.00
90.00	18	92	62	48.00	16	94	64	49.33	110	80	90.00	20	90	60	46.67	20	90	60	46.67	110	80	90.00	14	96	66	50.67
90.67	12	108	64	52.44	10	110	66	53.78	120	80	93.33	18	102	62	50.22	18	102	62	50.22	120	80	93.33	12	108	68	54.22
96.67	14	116	66	55.11	12	118	68	56.44	130	80	96.67	18	112	62	52.44	20	110	60	51.11	130	80	96.67	10	120	70	57.78
93.33	12	108	68	54.22	14	106	66	52.89	120	80	93.33	20	100	60	48.89	18	102	62	50.22	120	80	93.33	12	108	68	54.22
96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	18	112	62	52.44	20	110	60	51.11	130	80	96.67	12	118	68	56.44
96.67	14	116	66	55.11	14	116	66	55.11	130	80	96.67	20	110	60	51.11	18	112	62	52.44	120	80	93.33	14	106	66	52.89
93.33	12	108	68	54.22	14	106	66	52.89	120	80	93.33	20	100	60	48.89	20	100	60	48.89	120	80	93.33	12	108	68	54.22
80.00	14	86	56	44.00	14	86	56	44.00	110	70	83.33	18	92	52	43.56	18	92	52	43.56	100	70	80.00	14	86	56	44.00
90.00	20	90	60	46.67	14	96	66	50.67	110	80	90.00	24	86	56	44.00	18	92	62	48.00	110	70	83.33	14	96	56	46.22
90.00	10	100	70	53.33	10	100	70	53.33	120	80	93.33	14	106	66	52.89	16	104	64	51.56	110	80	90.00	10	100	70	53.33
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	10	100	60	48.89
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	12	98	58	47.56
90.00	10	100	70	53.33	10	100	70	53.33	120	80	93.33	14	106	66	52.89	16	104	64	51.56	110	70	83.33	12	98	58	47.56
93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	100	60	73.33	10	90	50	42.22
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33
90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	10	110	70	55.56
90.67	10	110	66	53.78	8	112	68	55.11	120	80	93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	10	110	70	55.56
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	12	98	58	47.56
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	10	100	60	48.89
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100	70	80.00	10	90	60	46.67
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	12	98	58	47.56
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	10	100	60	48.89
80.00	10	90	60	46.67	10	90	60	46.67	100	70	80.00	14	86	56	44.00	16	84	54	42.67	120	80	93.33	14	106	66	52.89
90.00	10	100	70	53.33	10	100	70	53.33	120	80	93.33	14	106	66	52.89	16	104	64	51.56	110	80	90.00	10	100	70	53.33
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100	60	73.33	10	90	50	42.22
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	10	100	60	48.89
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	10	100	60	48.89
83.33	12	98	58	47.56	12	98	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	110	70	83.33	10	100	60	48.89
73.33	10	90	50	42.22	10	90	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	100	60	73.33	10	90	50	42.22
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	12	98	58	47.56
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	110	70	83.33	10	100	60	48.89
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	100	60	73.33	10	90	50	42.22
93.33	10	110	70	55.56	12	108	68	54.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	126	80	95.33	10	116	70	56.89
83.33	12	98	58	47.56	12	98	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	120	70	86.67	10	110	60	51.11
90.00	10	100	70	53.33	10	100	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	110	80	90.00	10	100	70	53.33
93.33	10	110	70	55.56	10	110	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	100	60	73.33	10	90	50	42.22
93.33	14	106	66	52.89	14	106	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	120	80	93.33	14	106	66	52.89

LD5V1IOP	LD5V1SOPP	LD5V1DOPP	LD5V1MOP	D5V2SBP	D5V2DBP	D5V2MAP	RD5V2IOP	RD5V2SOPP	RD5V2DOPP	RD5V2MOP	LD5V2IOP	LD5V2SOPP	LD5V2DOPP	LD5V2MOP	RD5MD	RD5LV	LD5MD	LD5LV	
14	96.0	66	50.67	110	80	90.00	18	92	62	48.00	20	90	60	46.67	22.8	20.1	23.7	23.9	
12	98.0	68	52.00	110	76	87.33	14	96	62	48.89	18	92	58	46.22	8.0	11.3	8.6	10.2	
14	112.0	66	54.22	130	80	96.67	22	108	58	49.78	22	108	58	49.78	11.8	29.0	9.2	28.1	
14	106.0	66	52.89	120	80	93.33	20	100	60	48.89	18	102	62	50.22	8.2	14.8	8.4	14.0	
12	108.0	68	54.22	120	80	93.33	14	106	66	52.89	16	104	64	51.56	11.0	11.5	11.3	12.6	
16	104.0	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	17.6	20.6	27.0	27.1	
16	104.0	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	19.8	22.0	16.0	18.5	
10	120.0	70	57.78	120	80	93.33	14	106	66	52.89	16	104	64	51.56	9.9	12.3	9.9	13.0	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	9.9	12.0	9.3	12.4	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	10.6	10.5	11.0	10.5	
16	94.0	64	49.33	120	80	93.33	20	100	60	48.89	20	100	60	48.89	13.7	27.0	23.0	26.9	
10	110.0	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	
16	94.0	64	49.33	110	80	90.00	22	88	58	45.33	22	88	58	45.33	7.5	17.0	7.2	9.7	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	1.0	1.6	1.0	2.5	
12	108.0	64	52.44	120	80	93.33	18	102	62	50.22	18	102	62	50.22	7.9	12.0	9.3	12.1	
16	104.0	64	51.56	120	80	93.33	20	100	60	48.89	20	100	60	48.89	13.0	15.3	13.5	17.0	
12	108.0	68	54.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.0	3.0	0.8	2.1	
10	110.0	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	16	94	64	49.33	1.0	1.6	0.8	2.3	
10	90.0	60	46.67	100	70	80.00	18	82	52	41.33	18	82	52	41.33	9.7	14.0	10.3	16.1	
16	0.3	54	42.67	100	70	80.00	20	80	50	40.00	20	80	50	40.00	15.0	19.0	14.1	19.5	
10	90.0	70	51.11	110	70	83.33	20	90	50	42.22	18	92	52	43.56	6.5	9.3	7.2	12.0	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	1.2	2.8	0.9	2.8	
12	98.0	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.5	2.1	0.7	2.0	
16	114.0	64	53.78	130	80	96.67	22	108	58	49.78	22	108	58	49.78	10.5	13.8	11.5	17.1	
16	100.0	54	46.22	110	70	83.33	20	90	50	42.22	22	88	48	40.89	27.0	34.5	18.3	24.9	
14	112.0	66	54.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	0.8	2.1	0.5	2.7	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	1.2	2.8	0.9	2.8	
16	114.0	64	53.78	120	80	93.33	20	100	60	48.89	22	98	58	47.56	18.0	23.1	19.2	28.3	
16	94.0	64	49.33	110	80	90.00	20	90	60	46.67	22	88	58	45.33	20.1	30.0	17.2	23.2	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	12.3	10.6	11.5	12.1	
16	114.0	64	53.78	130	80	96.67	20	110	60	51.11	24	106	56	48.44	14.2	20.6	20.0	30.4	
14	116.0	66	55.11	130	80	96.67	20	110	60	51.11	20	110	60	51.11	14.2	20.6	20.0	30.2	
14	96.0	66	50.67	110	80	90.00	20	90	60	46.67	20	90	60	46.67	20.2	27.5	21.9	29.5	
14	106.0	56	48.44	120	80	93.33	18	102	62	50.22	18	102	62	50.22	18.8	21.6	28.0	36.2	
14	116.0	66	55.11	130	80	96.67	18	112	62	52.44	18	112	62	52.44	24.1	30.7	16.1	21.7	
12	88.0	58	45.33	100	70	80.00	16	84	54	42.67	18	82	52	41.33	15.0	12.2	20.3	28.0	
14	116.0	62	53.33	120	80	93.33	18	102	62	50.22	18	102	62	50.22	6.8	11.0	8.2	12.4	
12	98.0	58	47.56	110	70	83.33	18	92	52	43.56	18	92	52	43.56	8.8	13.0	7.5	11.5	
12	88.0	58	45.33	110	70	83.33	14	96	56	46.22	16	94	54	44.89	6.7	12.1	7.0	12.1	
12	88.0	58	45.33	100	70	80.00	18	82	52	41.33	16	84	54	42.67	6.9	12.5	7.4	12.3	
12	88.0	58	45.33	110	70	83.33	16	94	54	44.89	18	92	52	43.56	6.1	9.5	5.0	8.2	
16	94.0	64	49.33	110	80	90.00	18	92	62	48.00	18	92	62	48.00	9.9	12.3	9.3	11.8	
16	94.0	64	49.33	110	80	90.00	18	92	62	48.00	18	92	62	48.00	17.8	21.9	15.3	19.7	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	20	100	60	48.89	20.6	223.2	21.6	29.0	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	16	104	64	51.56	11.8	12.5	10.2	12.3	

LD5V1IOP	LD5V1SOPP	LD5V1DOPP	LD5V1MOP	D5V2SBP	D5V2DBP	D5V2MAP	RD5V2IOP	RD5V2SOPP	RD5V2DOPP	RD5V2MOP	LD5V2IOP	LD5V2SOPP	LD5V2DOPP	LD5V2MOP	RD5MD	RD5LV	LD5MD	LD5LV	
14	106.0	66	52.89	120	80	93.33	20	100	60	48.89	18	102	62	50.22	17.5	26.4	19.0	20.8	
14	96.0	66	50.67	110	80	90.00	20	90	60	46.67	20	90	60	46.67	13.0	15.1	12.1	13.7	
14	96.0	66	50.67	120	80	93.33	18	102	62	50.22	18	102	62	50.22	12.1	13.5	12.2	18.7	
14	112.0	66	54.22	130	80	96.67	18	112	62	52.44	16	114	64	53.78	18.2	25.1	24.2	26.9	
14	86.0	56	44.00	110	70	83.33	18	92	52	43.56	18	92	52	43.56	20.3	26.0	15.9	22.3	
14	96.0	66	50.67	110	80	90.00	20	90	60	46.67	18	92	62	48.00	25.5	33.4	16.8	24.9	
12	108.0	68	54.22	120	76	90.67	18	102	58	48.44	18	102	58	48.44	9.2	13.9	8.9	11.9	
12	118.0	68	56.44	120	80	93.33	18	102	62	50.22	18	102	62	50.22	9.2	12.8	11.1	12.1	
12	108.0	68	54.22	120	80	93.33	18	102	62	50.22	18	102	62	50.22	11.9	12.8	12.2	14.2	
14	116.0	66	55.11	130	80	96.67	20	110	60	51.11	22	108	58	49.78	15.6	20.1	14.2	19.1	
14	106.0	66	52.89	130	80	96.67	20	110	60	51.11	22	108	58	49.78	16.7	24.3	18.1	25.7	
12	108.0	68	54.22	120	80	93.33	18	102	62	50.22	16	104	64	51.56	10.3	13.5	10.2	12.5	
14	86.0	56	44.00	100	70	80.00	18	82	52	41.33	20	80	50	40.00	15.4	20.1	17.1	22.9	
14	96.0	56	46.22	110	80	90.00	20	90	60	46.67	18	92	62	48.00	28.1	16.7	21.3	30.0	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.3	3.2	0.8	2.0	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.5	2.1	0.7	2.0	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	16	94	64	49.33	1.0	1.6	0.8	2.3	
12	98.0	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	1.5	3.2	1.2	2.8	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.7	1.6	1.4	2.0	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	1.2	2.8	0.9	2.8	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	1.2	2.8	0.9	2.8	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	1.0	1.6	1.0	2.5	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	
10	110.0	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	
10	110.0	70	55.56	120	80	93.33	14	106	66	52.89	14	106	66	52.89	0.5	2.4	0.7	2.1	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	1.2	2.8	0.9	2.8	
12	98.0	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.5	2.1	0.7	2.0	
10	90.0	60	46.67	100	70	80.00	16	84	54	42.67	16	84	54	42.67	0.7	1.6	1.4	2.0	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	0.7	1.6	1.4	2.0	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
12	98.0	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	1.5	3.2	1.2	2.8	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	12.3	10.6	11.5	12.1	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	1.3	3.2	0.8	2.0	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.5	2.1	0.7	2.0	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	16	94	64	49.33	1.0	1.6	0.8	2.3	
12	98.0	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	1.5	3.2	1.2	2.8	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	0.7	1.6	1.4	2.0	
12	98.0	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	
12	98.0	58	47.56	110	70	83.33	16	94	54	44.89	16	94	54	44.89	1.5	3.2	1.2	2.8	
10	90.0	50	42.22	100	60	73.33	14	86	46	39.56	14	86	46	39.56	0.9	2.6	0.9	2.8	
12	98.0	58	47.56	110	76	87.33	16	94	60	47.56	14	96	62	48.89	1.2	2.8	0.9	2.8	
12	98.0	58	47.56	120	80	93.33	16	104	64	51.56	16	104	64	51.56	1.2	3.0	1.0	2.7	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	1.0	1.6	0.8	2.3	
14	112.0	66	54.22	120	80	93.33	16	104	64	51.56	16	104	64	51.56	0.8	2.1	0.5	2.7	
10	110.0	60	51.11	120	80	93.33	14	106	66	52.89	16	104	64	51.56	1.7	2.0	1.2	2.8	
10	100.0	70	53.33	110	80	90.00	14	96	66	50.67	14	96	66	50.67	0.8	2.3	1.0	1.5	
10	90.0	50	42.22	100	70	80.00	14	86	56	44.00	14	86	56	44.00	1.0	1.6	1.0	2.5	
14	106.0	66	52.89	120	80	93.33	18	102	62	50.22	18	102	62	50.22	12.3	10.6	11.5	12.1	